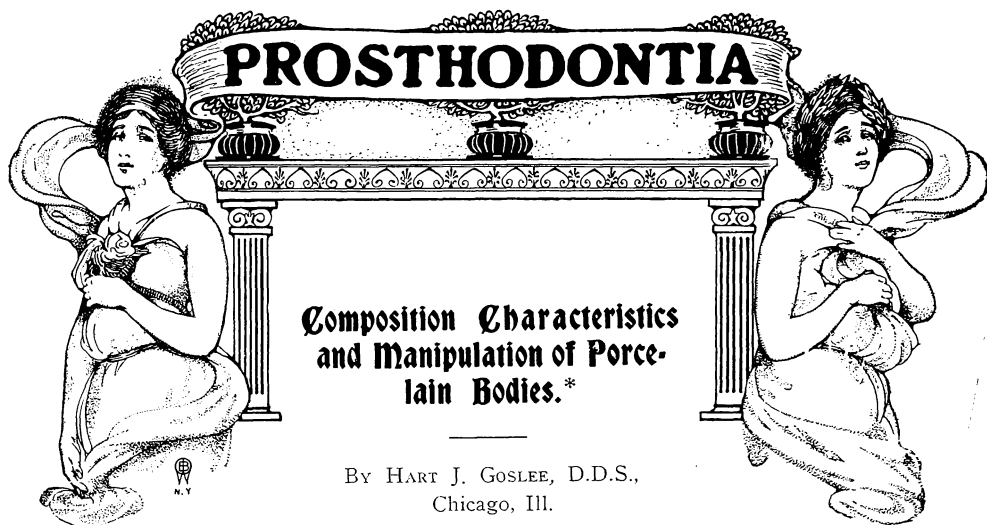




DR. STEWART BAILEY PALMER



Applying and Building. One Grade of "Body." Variations in Shading; Use of Oil Colors; Contouring and Carving. Primary "Bake." Final "Bake." "Foundation" and "Enamel" "Bodies." Precautions Incident to Fusing. Supporting Crown in Furnace. Placing Crown in Furnace. Heating Furnace. Fusing: Tests, Porosity. Furnaces: Electric Furnaces, Gasoline Furnaces, Gas Furnaces.

Applying and Building.

In the manipulation of these compounds, it must be remembered that their tendency to *shrink* in fusing plays quite an important part, and governs the method of procedure to a large extent.

In the use of one grade of body, *having the same fusing point*, throughout the construction of the piece, the desired shape and contour for the finished crown should obtain for the first, or *primary* "bake," and yet it is *seldom possible* and *never expedient* to complete it in *one "bake,"* because of the shrinkage.

This latter feature necessitates *two*, and sometimes even more, "bakes," though the procedure is somewhat facilitated by forming the desired contour, even to the requirements of occlusion for the *primary* "bake," and the second or *final* application of "body" should then be made

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for the express purpose of *restoring that portion of the original form which has been somewhat changed by the shrinkage incident to the primary fusion* or "bake."

With the crown grasped firmly in the pin-vise, and the body mixed to the proper consistency, a small quantity should be picked up with the point of a suitable instrument and first forced into the joint between cap and facing.

This may be facilitated by gently tapping the handle of the pin-vise, or by drawing a coarsely serrated instrument across it, and the procedure should be continued until the "body" is *thoroughly packed* into the space.



Fig. 197.

A suitable instrument, designed by the author, for universal use in this work, and combining a spatula for mixing, a serrated shank for packing, and a pointed blade for carving, is illustrated in Fig. 198.



Fig. 198.

This feature of *packing* is imperative throughout the entire building up of the crown, as a means of insuring a high degree of integrity in the mass when fused, and of overcoming the tendency toward *porosity* in fusing, by insuring a close and *compact coalescence* of the particles.

As the building up progresses and each additional application of body is thus carried to place, and the contour formed, the procedure may be facilitated by absorbing the excess moisture, as it is brought to the surface, with a clean piece of linen or cotton cloth, or blotting or bibulous paper, until the approximate outline for the finished crown, *with a slight surplus*, obtains.

The latter part of the procedure may be accomplished with greater ease and facility by mixing the body to a *thicker consistency* after the joints and all small interstices are well filled.

When the required form has been obtained, the remaining moisture may be then more quickly evaporated by *passing the crown over a flame* until the mass is sufficiently dry to admit of being nicely carved.

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The "body" should always remain moist enough, however, to be carved and trimmed without flaking or crumbling, and in the event of its becoming too dry to admit of this, it may be again slightly moistened by touching it with a wet brush.

In building up bicuspid and molars, after first filling the joint, a narrow strip of blotting paper may be conformed to the outline of the lingual portion of the band, and when held in place will serve as a matrix to hold the body in shape, which thus facilitates the procedure.

Variations of shade may be quite easily obtained
Variations in Shading. by selecting the appropriate colors of body and mixing them separately. The color indicated for the base of the crown should then be applied, and built up to the desired point, when the other may be added without allowing the first to become completely dry.

Their use in this manner affords opportunity for blending them in fusing, and very artistic results are possible, particularly in those cases where the base should be yellow, or brown, and the incisal or occlusal end blue, or gray, in any of their variations.

The use of the oil colors previously mentioned
Use of Oil Colors. may also be productive of most excellent and artistic results. They should be *thoroughly mixed* to a thin consistency, with the accompanying *oil*, applied with a small brush, and separately fused.

Where it is desirable to produce a change in the color of the *facing*, these colors should be applied at the desired point on the *lingual surface*, and then fused, after which the "body" may be applied, as required, and the underlying color will show through the more or less transparent facing.

An appreciable change in the color of the porcelain forming the body of the crown may also be produced by applying and fusing these colors to the surface after the *primary* bake, when the final contouring may be made, the transparency of which, after fusion, will indicate the presence of the underlying color.

In simulating the characteristics of remaining natural teeth, *grooves*, *pits* and *sulci* may be colored or tinted as desired. As these colors fuse lower than the "body," however, this work can be done to the best advantage *after the crown has been otherwise completed*; and when they are used for such purposes on the labial or buccal surfaces of the facings, the desired inequalities should first be ground with a small carborundum stone in the engine, and this outline then properly colored or tinted, and the crown again fused until the colors become vitreous.



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Contouring and Carving.

If not too dry, the procedure incident to contouring and carving the "body" is quite simple, but the artistic results will depend much upon personal equation and knowledge of the forms of teeth.

This may be easily acquired by a close study of natural teeth, and a good plaster model of a full typical arch will assist by serving as a guide in the execution of this work.

As has been previously stated, anatomically correct outlines are not essentially necessary, and artistic results may be obtained by simply so typifying the cusps as to distinguish between the right and the left, the upper and the lower teeth.

The requirements of occlusion with the opposing, and contact with

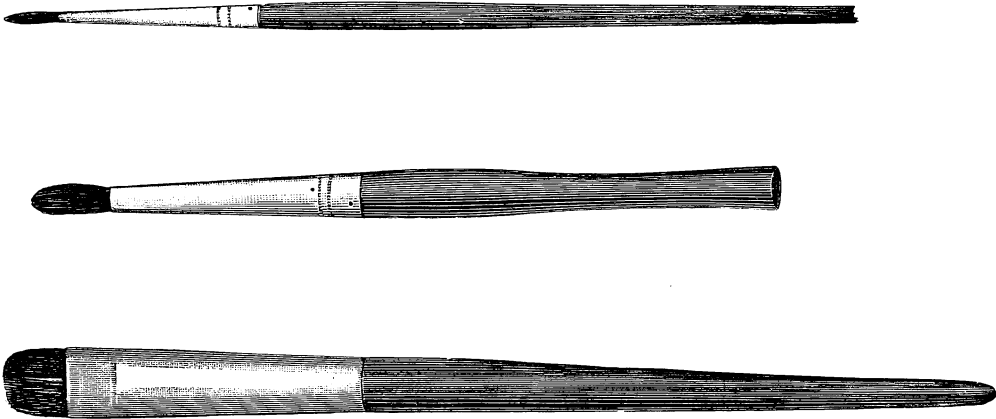


Fig. 199.

the adjacent, teeth may be observed by trying the crown upon the model during the process of carving, and in order to prevent flaking the body or changing its given form, it may be carefully and *slightly* moistened with a wet brush previous to such trials.

For this reason, it is always necessary to have a good model to which the crown may be easily adjusted to position, as has been previously recommended.

In contouring and trimming the porcelain, it *must not overlap the band*, upon any surface, nor at any point, excepting along the *labial or buccal surface, where the facing mechanically retains it*, for without such means of retention it will invariably fracture or break away, leaving

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a rough, sharp, or irregular joint with the cap; and previous to placing the crown in the furnace all particles of body which remain deposited upon, or overlapping, the surface of the facing, or which may have found lodgment on the inside of the cap, or on the under surface of the base, should be carefully removed with a clean, dry brush to prevent it from becoming attached in fusing.

The brushes used in this work should be of a good quality, such as are employed in water color painting, and the three useful sizes and shapes are illustrated in Fig. 199. The largest size should always be kept dry and used only for smoothing up the work, while the medium

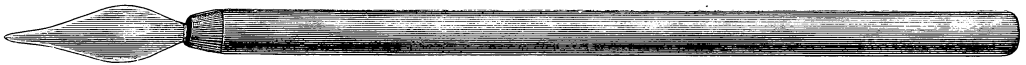


Fig. 200.

size should be employed for the purpose of moistening the "body," when necessary, and the smaller one only for painting, or deepening the finer lines in carving.

A very convenient form of simple carving instrument, designed by Mr. Robert Brewster, is illustrated in Fig. 200.

In trimming the body, the allowance of a slight surplus is demanded by the shrinkage, but the exact extent may only be ascertained with accuracy by a familiarity with the compound used, as all vary considerably in such properties.

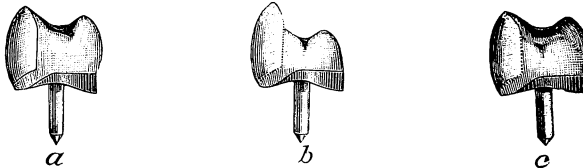


Fig. 201.

The crown, when the body has been trimmed, and carved, and when ready for the *primary* "bake," is illustrated in Fig. 201 A.

When this desired form, and blending of color, **Primary "Bake."** have been obtained, the crown should be placed in the furnace and "baked" until the body becomes *slightly vitrified*, and the *particles well coalesced*, but its surface *should not be highly glazed* at this time.

This degree of fusion, or vitrification, is preferable to the so-called *biscuit* bake, commonly advocated, because of the desirability of securing



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a maximum degree of shrinkage in the primary fusion, but the surface should not be allowed to become *smooth* and *vitreous* at this time, because the second application of the body will not adhere so well to it. Fig. 201 B illustrates the appearance of the crown after the "primary bake," and indicates the degree of shrinkage and consequent change of form which takes place.

For the final "bake," the crown should be again adjusted to the pin-vise and the "body" thoroughly mixed, *to a thin consistency, and first worked well down into every crevice and fissure* caused by the shrinkage, and then applied over the surface until the desired contour has been obtained, when it should be fused to the required degree of vitrification for the finished work, which is illustrated in Fig. 201 C.

If the crown comes out of the furnace after this "bake" presenting an irregular or broken surface of porcelain, such places should be filled

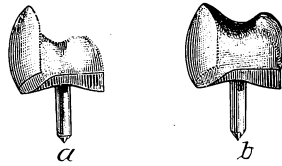


Fig. 202.

with "body," and again fused, though if the proper precautions are observed, this will seldom be necessary.

When two grades of "body" which fuse at different temperatures, such as the so-called "foundation" and "enamel bodies," are used, the requirements are somewhat different from those indicated for one grade of body, because, if the desired contour of the crown is obtained in the primary formation and fusion, it will be difficult to manipulate the "enamel" body for the final bake, as it will necessarily need to be applied so thinly over the surface of the "foundation" body as to preclude any carving, and increase the tendency to flake off, or become detached in places, before fusing.

Hence, where it is desirable to use two grades, the higher fusing, or "foundation," body should be applied first, only in quantity sufficient to indicate the desired form, as illustrated in Fig. 202 A.

This should be fused and the lower fusing, or "enamel," body then applied, trimmed and carved as desired (Fig. 202 B), and then fused.

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The increased quantity of the latter body and its greater shrinkage demands an allowance of more surplus than would be necessary if the same higher fusing body were used throughout.

Precautions Incident to Fusing.

No portion of this work is of more importance than the "baking" or fusing of the body, because the *strength* of the porcelain, and its true color, no matter to which class it belongs, are entirely dependent upon its being properly fused.

When the crown is ready for the furnace, it must be adjusted to a suitable form, which will *accommodate the dowel, support the base of the crown by allowing it to rest firmly and evenly*, and which will sustain it in a perpendicular position while in the furnace.

Supporting Crown in Furnace.

Whilst platinum trays were first used, and are even now occasionally recommended, for this purpose, their employment is objectionable because the crown not infrequently becomes attached to them in fusing, and

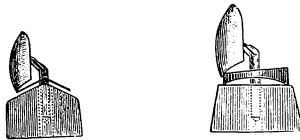


Fig. 203.

in the subsequent detachment the porcelain may be checked, or the shape of the band altered.

This attachment may be due to the re-fusion and flowing of a surplus of the pure gold, when such is used in soldering, or to an excess, or the over-fusing, of the porcelain, but whatever the cause, may be precluded by the use of supports made of *fire-clay* or chalk, of suitable form.

The proper adjustment of a crown with and without a band, to the style of support indicated for each, is illustrated in Fig. 203.

Such supports may be made by moulding a good grade of fire-clay to the desired shape, and "baking" it; or may be procured in various designs to meet the equally varying requirements of practically indestructible material from many of the manufacturers of furnaces and "bodies."

Useful designs for this purpose are supplied by Dr. R. C. Brophy, of Chicago (Fig. 204), or may be made by trimming down a piece of ordinary blackboard chalk to meet the requirements of the case.



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The latter is composed of compounds of magnesium and calcium, which are practically infusible, and being very inexpensive, it is quite useful. Such supports will serve the purpose nicely for individual fusings and may even be used two or three times before the form is lost.

Placing Crown in Furnace.

In placing the crown in the furnace, it should be observed that the dowel does not extend entirely through the perforation for its accommodation in the support, so as to bring its end in contact with the floor of the muffle; and that the facing does not touch the dome or sides of the latter, as such contact in either instance will invariably result in a fracture of the facing, due to too rapid heating, or uneven expansion.

The crown should be held in a perpendicular position, if possible, in order to prevent any change of form which might be induced by the influence of gravity, when the mass is in the fused state; and the body should always present toward the opening or door of the muffle, so that it may be closely watched while fusing. This latter feature is of

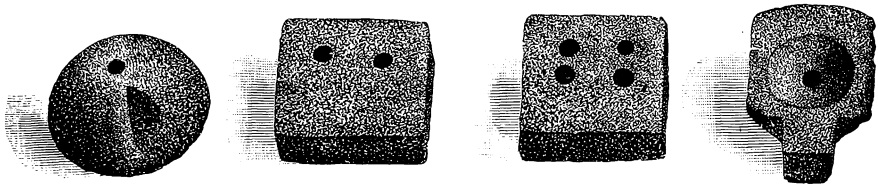


Fig.204.

special importance, because if the body is not visible to the eye, portions of it may flake off unnoticed during the heating of the case, and necessitate a subsequent bake, to avoid which it should always be heated carefully and watched closely during the fusing.

Heating Furnace.

As a matter of expediency, the heating of the furnace should begin immediately preceding, or during, the building up of the crown, so that the muffle will be thoroughly, but not excessively, heated when the crown is ready for the baking.

When these precautions have been observed, the support carrying the crown should be placed near the opening of the heated muffle and allowed to remain for a few moments, in order to become *thoroughly dry* before it is placed inside of the furnace. This will preclude *blistering* the surface of the "body," or the displacement, or flaking, of particles from the crown, as a result of the expansion of the remaining moisture, which would be induced by too rapid heating.

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In placing the crown in the furnace, it should be carried to a position as nearly in the center of the muffle as possible, or to that point where there are the greatest number of heat units. For the reason that this heat area varies to a considerable extent, it is seldom advisable in the smaller crown furnaces, with the opening in one end only, to fuse more than one or two crowns at a time, and if each is to be baked *uniformly*, they must be placed *crosswise* in the muffle, in order to get such a result, as the temperature decreases toward the door or opening.

Fusing.

In the fusing of porcelain "bodies" the physical process involved constitutes changing the powdered *granular* mass into a *vitreous* substance, which is then more or less homogeneous in proportion to the thorough admixture of the "flux" and the degree of fusibility of all ingredients, or the degree of complete coalescence of all of the particles.

Hence the proper fusing of these compounds is largely a matter of experience. In the lower fusing "bodies" the proper and desired degree of vitrification may be easily and definitely ascertained by observing this physical change as it is produced by the application of heat. This is also true of the higher fusing bodies, but the greater degree of heat required, and the consequent incandescence within the furnace makes it more difficult. The eye may be trained to a degree of familiarity with the physical changes, however, which will enable the experienced operator to more or less easily distinguish the disappearance of the rough or *granular* surface, and the appearance of the smooth, glassy or *vitreous* surface even in the, at first, somewhat trying glare of the incandescent heat, without greatly endangering or impairing the sight, because it is not necessary to bring the eyes close enough to the furnace to be seriously affected by the heat.

Smoked or colored glasses may be found useful in this connection, and during the fusing of the "body" the furnace may be occasionally opened for this purpose without danger of fracturing the facing, because the volume of heat is too great to admit of the ingress of cold air.

While everyone desiring to do this class of work in the most accurate and successful manner should cultivate this degree of familiarity with the characteristic appearance of the "body" in the various stages of vitrification, it can only be acquired through experience. When the crown is properly placed in the furnace the heat should be gradually increased until a bright red color is produced. This may be done by degrees without observing the crown itself, but from this point on the latter should be watched closely so as to observe when the rough and granular surface



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becomes smooth and vitreous, which to the experienced eye is indicated by the degree of incandescence, and as soon as a *glassy* appearance has spread over the entire surface of the porcelain the heat should be immediately turned off.

Tests.

Many tests for determining the exact heat required to properly fuse the various "bodies" have been suggested. Alloys of platinum and gold prepared in various proportions with a view to having the test metal melt at the same point as the porcelain would greatly facilitate the fusing, but as this requires a special alloy for each kind of "body," and as these are not on sale ready prepared at the present time, it involves considerable experimentation to apply this method.

Pure Gold.

Pure gold may be used with some degree of facility, and its use is recommended as a guide to the beginner and an aid even to the experienced. A pellet of foil, or a globule *previously flattened* on the anvil for each fusing may be placed alongside of the crown in the furnace. When this fuses, which may be noted by its assuming globular form, the beginning of vitrification of nearly all of the higher fusing bodies will be indicated.

From the moment of the fusion of the gold to the required or desired point of vitrification of the porcelain, *time* is the only reliable test other than the eye, and as this varies with each furnace and class of body, it must be previously more or less definitely ascertained by experimentation.

The separate fusing of several cubes of the "body" used will enable one to ascertain the exact time after the fusion of the pure gold with approximate exactness. When the desired point of fusion has been reached the heat should be immediately shut off, and the crown allowed to cool slowly until a low temperature obtains, when it may be removed from the furnace. Whilst immediate removal as soon as the heat is turned off, and then placing the crown in a *cooling muffle*, or in some convenient receptacle where the air will be excluded until it is cold, is sometimes recommended, and is permissible in emergencies, the furnace itself affords the best "cooling muffle," and the slow and gradual cooling of the piece seems to "*temper*" or anneal the body, and thus render it less brittle.

Porosity.

Porosity of the body after fusing is one of the chief causes of failure in this work. When this occurs it may invariably be attributed to one of three causes,—the use of a surplus of pure gold in soldering; imperfectly "*packing*" the body in building up the crown, or *overfusing* it in the furnace.

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An excess of pure gold which occupies space and which space subsequently becomes a vacuum when the gold is fused in the furnace and absorbed by the platinum, can be avoided by using a minimum quantity of, and properly fusing the gold during the process of soldering.

There is no excuse for imperfect "packing" if the precautions indicated are observed; and "overfusing," which will be denoted by the beginning of a change of form, will not occur if the case is watched closely while in the furnace, or the time test is accurate. This is extremely essential to the success of the finished work, because overfusing burns out, or dissipates, the color, and destroys the integrity of the material, no matter to which class it belongs.

When the final baking has been completed the exposed lingual sur-

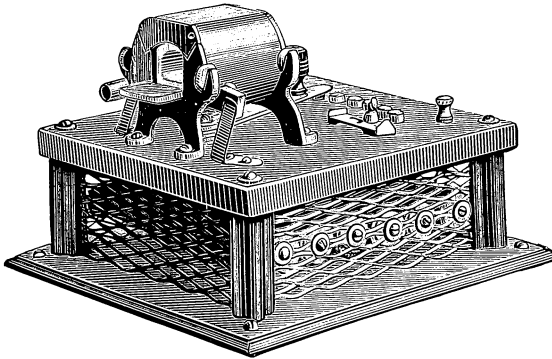


Fig. 205.

face and entire edge of the platinum band should be smoothed with sand-paper and polished with cuttle-fish disks, and the crown then tried to place and mounted.

Furnaces.

Several varieties of furnaces are now made for porcelain work in which three sources of heat production are successfully employed,—electricity, gasoline and gas.

The electric furnaces, or "ovens," in which the heat is obtained by the passing of the current through a close coiling of small platinum wire slightly imbedded in fire-clay without contact, possess the advantages of



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purity, range and control of heat, and of cleanliness and the absence of noise or odor.

Owing to the absolute purity of the heat thus obtained any possible danger of discoloring the porcelain from "gassing," is eliminated; and for all of the combined reasons mentioned the use of the electric furnace is recommended wherever it is possible to secure suitable commercial current, such as is supplied for incandescent purposes.

Of the several makes of these furnaces especially constructed for small work, such as single crowns and small bridges, those designed by

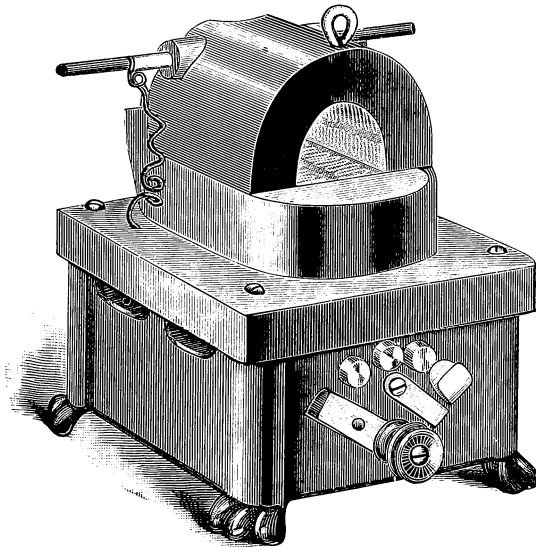


Fig. 206.

Mr. J. F. Hammond, of New York, and Dr. L. E. Custer, of Dayton, Ohio, are to be especially recommended as being neat, compact and serviceable.

The designs include a rheostat in serial connection with the muffle or "oven" and forming the base of the furnace, and they work equally well on either the direct or alternating currents of the same voltage.

While each furnace is made in three sizes, the Hammond No. 2, Fig. 205, and the Custer No. 5, Fig. 206, will be found to be most applicable to this special work, though there is no objection to using the larger sizes which are designed for continuous gum work when several crowns at one time, or large bridges, are to be "baked."

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As the larger sizes require more time in fusing, it is more expedient to use the smaller ones for crown work. The *opening* in the latter, however, is in *one end*, hence the heat is greatest as the back wall of the muffle is approached. For this reason, if more than one piece is "baked" at the same time, they must be placed *crosswise* and *not lengthwise* with the muffle, in order that the porcelain may be uniformly fused.

When the piece is adjusted in the heated furnace it should be allowed to remain for a few moments, and the lever controlling the rheostat then gradually and consecutively pushed from button to button, with an interval of from one to two minutes between each. When the last or highest step required is reached, the case should be closely watched until the body is properly fused, or timed from the fusing of the pure gold, when the lever should be immediately reversed, and the piece allowed to cool more or less slowly before removing.

Convenient pliers of special design, suitable for inserting or removing the support containing the piece, are illustrated in Fig. 207, but,



Fig. 207.

while these are also very useful for solder work in general, because of their length, a special pair, kept perfectly clean, should be used for this work. In using pliers in the furnace, however, when the current is turned on care must be exercised to avoid bringing them in contact with the wires, and thus possibly fusing the latter or "burning out" the furnace by short-circuiting.

Where it is not possible to secure commercial **Gasoline Furnaces.** electric current, and for reasons of possible emergency and economy, the gasoline and gas furnaces, as now made, will serve the purpose nicely, and when properly used, will furnish adequate heat.

While it is true that such facilities do not afford the same degree of absolute purity of heat, there is but little danger of "gassing" or discoloring the porcelain, in their use, if the continuity of the muffle is perfect.

The gasoline furnace is preferable to gas because the heat production is aided by means of a pneumatic pump and the one manufactured by Dr. R. C. Brophy, of Chicago, Fig. 208, especially designed for crown



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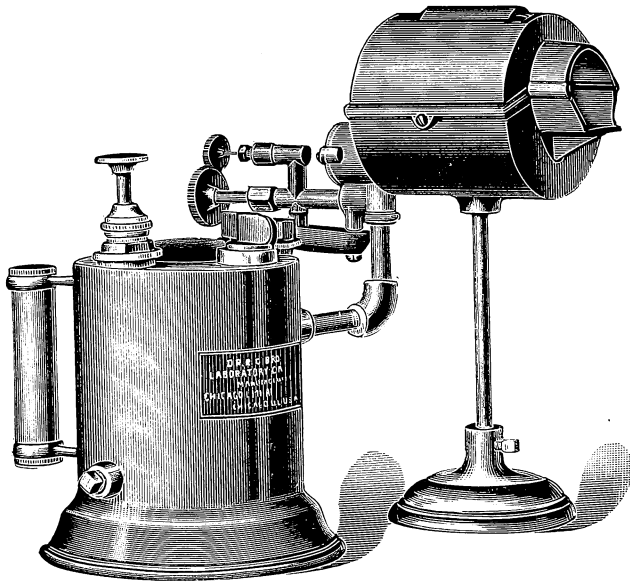


Fig. 208.

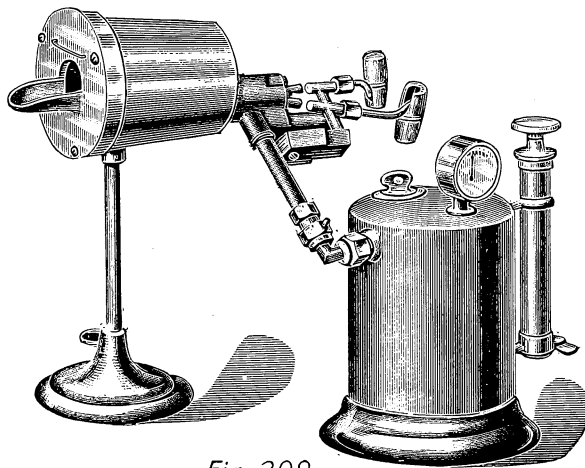


Fig. 209.

PROSTHODONTIA

and bridgework, is adequate to the requirements in every respect. This furnace is made in two styles, one with a very thin fire-clay muffle, and the other with a nickel muffle, both of which are quite serviceable, with the preference perhaps slightly in favor of the former.

The Turner gasoline furnace, Fig. 209, manufactured by the Turner Brass Works, of Chicago, is similar in design (except that the nickel muffle is exclusively used), and is perhaps equally as effective.

In the use of these furnaces they should be started and well heated before the work is placed in the muffle, and the piece should first be thoroughly dried and heated at the opening before being carried into the inside.

As the muffle opens from one end the same precautions indicated in connection with similarly constructed electric furnaces should be ob-

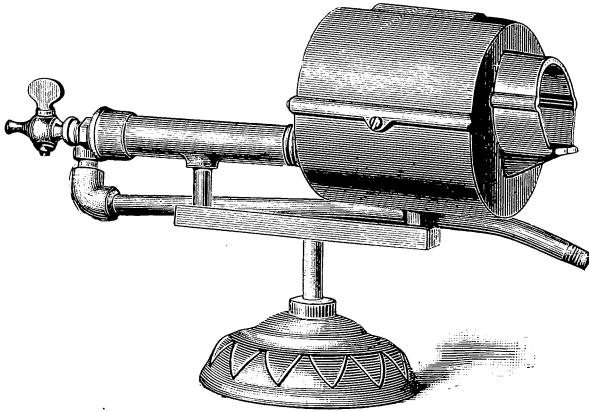


Fig. 210.

served, and when the work is finally adjusted to place, the opening should be closed as a means of confining the heat to the inside and preserving its purity.

The fusing of the porcelain may be known either by watching with the eye, or by gold and time test, as previously described, in which the "plug" closing the opening of the muffle may be frequently removed for the purpose of observation, and the same requirements incident to turning off the heat, and allowing the work to cool slowly should also be observed.

If the required heat is to be obtained with facility, the supply of air must not be allowed to become diminished, hence the pump must be used with sufficient frequency to maintain high pressure.

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It is also necessary to watch the condition of the muffle in order that it may be replaced when the continuity becomes destroyed by disintegration, by which means the possibility of "gassing" the work will be largely overcome; and, the greater facility with which this may be done, together with the inclosed shelf at the opening of the muffle, for heating the work, and the larger size of the latter, constitute the main advantages of the first-mentioned furnace.

The gas furnace designed by Dr. R. C. Brophy, **Gas Furnaces.** Fig. 210, may also be successfully used. As a supply of air sufficient to afford complete combustion with illuminating gas is needed, however, the employment of compressed air, or the use of the "bellows" becomes necessary, and in the absence of the former, the effort required is of course much greater than that in the use of gasoline. Where compressed air is available, this furnace is to be especially recommended.

The more or less objectionable odor which emanates from the use of gasoline, however, is overcome, but the noise produced by the combustion in each is one of the most unfavorable features in connection with the use of either of these furnaces.





Normal and Pathological Anatomy of the Alveolar Process and Adjacent Tissue.

By M. H. CRYER, M.D., D.D.S.

A lecture before the American Society of Orthodontists, Philadelphia, October, 1902.

Mr. President and Gentlemen:—It affords me great pleasure to have this opportunity of giving you an informal and illustrated talk upon the Normal and Pathological Anatomy of the Alveolar Process and Adjacent Tissue, with some of the causes for malformation of the mouth, tongue and alveolar process.

The subject may be divided into four parts. First, the bony tissue forming the jaws and alveolar processes.

The first four illustrations are taken from an almost typical skull. The object of giving these illustrations is to show what may be considered the typical arrangement of the teeth as to position in the alveolar process and their relation with each other in the individual jaws, as well as in the upper and lower jaws. There is a slight deviation in the nasal septum which is sometimes accompanied by a difference in the shape of the maxillary bones. It will not do to lay the cause of this difference or the position of the teeth to a crooked septum. The same cause which produced the deflected septum would more than likely influence other deformities of the maxillary bones and the position of the teeth.



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Dr. Kohler said in his paper yesterday that the Rhinologists find that nearly all persons have crooked or deflected septa of the nose. No doubt with but few exceptions those examined by the rhinologist have deflected septa, for it must be remembered that those having straight septa seldom, if ever, visit the rhinologist. In examining the skulls that have been cut transversely through the nasal fossae, I find the greater percentage have straight septa. Even when the septum is deflected that portion composed of the vomer is seldom

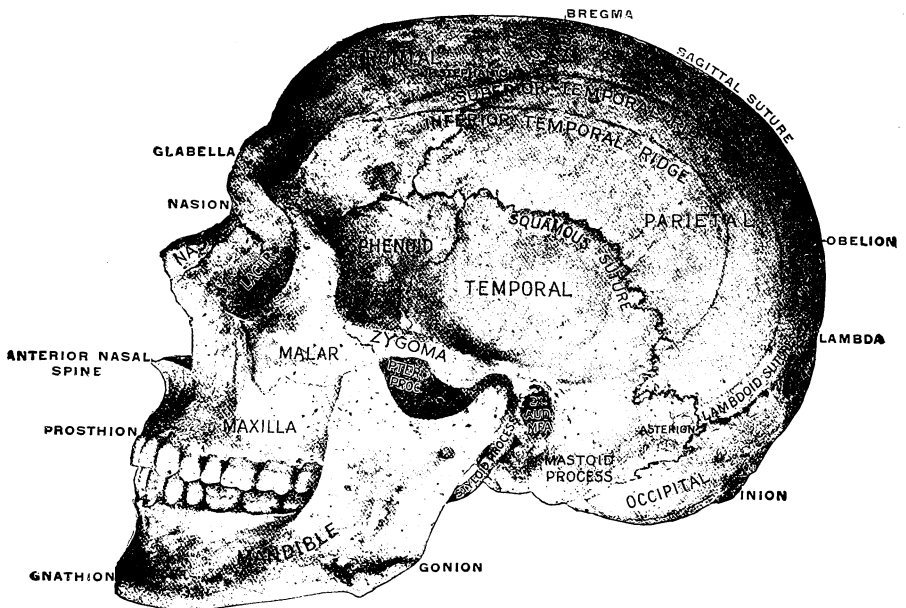


Fig. 1.* Side view of a typical skull.

involved. He also spoke as though the septum could be forced upward in such a manner that the brain might be injured. If the general architectural features of the hard tissue were studied, it would show that it would be impossible for a thin cartilaginous septum to force the ethmoid bone upward.

There has been considerable discussion in regard to "jumping the bite" or the movement of the mandible forward or backward the width of a premolar tooth. This will greatly depend upon the individual. In some cases the mandible could be carried forward, but the

*Figs 1 to 14, inclusive (except Fig. 2), are from Dr. Cryer's book, "Studies of the Internal Anatomy of the Face," and the blocks are loaned by the publishers. All the other illustrations are from hitherto unpublished photographs by the author.—EDITOR.



Fig. 2.

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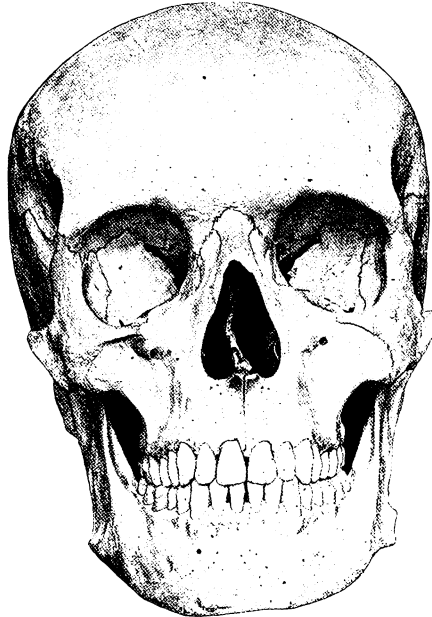


Fig. 3. Anterior view of the typical skull shown in Figs. 1 and 3.



Fig. 4. Under view of the skull shown in Figs. 1, 2 and 3, with the mandible removed.

anatomical structures of the articulation would make it almost impossible to carry it backward. There are three skulls in the working museum of the Dental Department of the University of Pennsylvania where the condyloid process has been carried forward, the eminentia articularis and the head of the condyle having been so flattened that an articulation has been found in front of the glenoid fossa. Fig. 5 is taken from one of these specimens.

Dr. Kohler spoke of the teeth as belonging to the maxillary bone. This is a generally accepted term, though they really do not belong



Fig. 5.

Modification of the left temporo-mandibula, articulation through the jaw being forced forward in mastication in order to bring the remaining teeth in occlusion.

to these bones. Teeth are dermoid appendages developed from the mucous membrane of the mouth and are situated in the alveolar process which is attached to the bone. This bony tissue of the alveolar process differs in many ways from the bony tissue of the body. Dr. Hopewell-Smith in his microscopical studies has shown that the bone of the alveolar process is different histologically: in the Haversian system especially. The process is developed with the teeth and is lost with them. Surgically the alveolar process acts quite differ-

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ently. It may be well to cite a case for illustration, of a patient who had lost, by necrosis, all of the bone between the first premolar and the second molar of the left side of the mandible. Complete bony separation of the parts had taken place. A splint or "bridge" was made which extended from the third molar on the affected side over the separation to the anterior teeth and the premolars on the right side. This was cemented into position on the first day of June, 1899, and was removed in January, 1900. The bone belonging to the man-

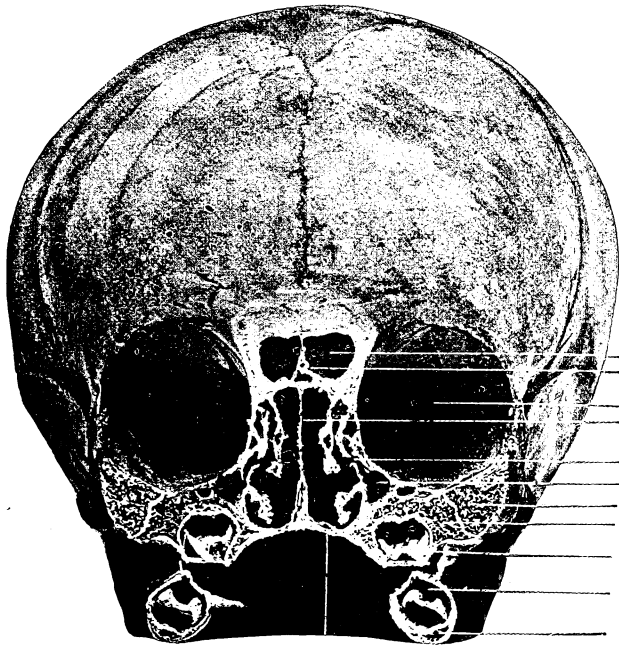


Fig. 6.

Skull of a fully developed embryo, cut vertically through deciduous premolars.

dible proper had reformed, uniting the two portions. The outer, inner and under surfaces were so smooth that the place of separation could not be seen or felt. On the top of the bone, however, there was a deep depression where the alveolar process had not been reformed, showing a marked difference between the two structures.

Fig. 6 is from the skull of an infant at birth. It is quite symmetrical as to the nasal fossæ, the small maxillary sinuses, the germs of the deciduous teeth and the alveolar process of both jaws. It will

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be plainly seen that the width of the upper jaw is less than that of the lower.

As the teeth grow the alveolar process also increases and extends



Fig. 7.

Under view of two skulls; A, from a subject about twenty-five years old; B, from one well advanced in years.

outward and downward. As the lower jaw increases in width its alveolar process extends upward and slightly inward. In this way the

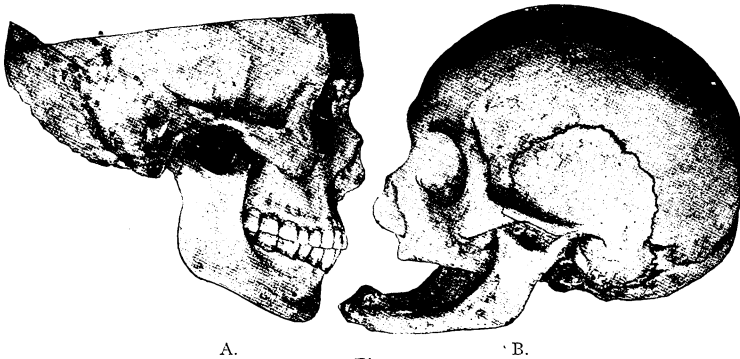


Fig. 8.

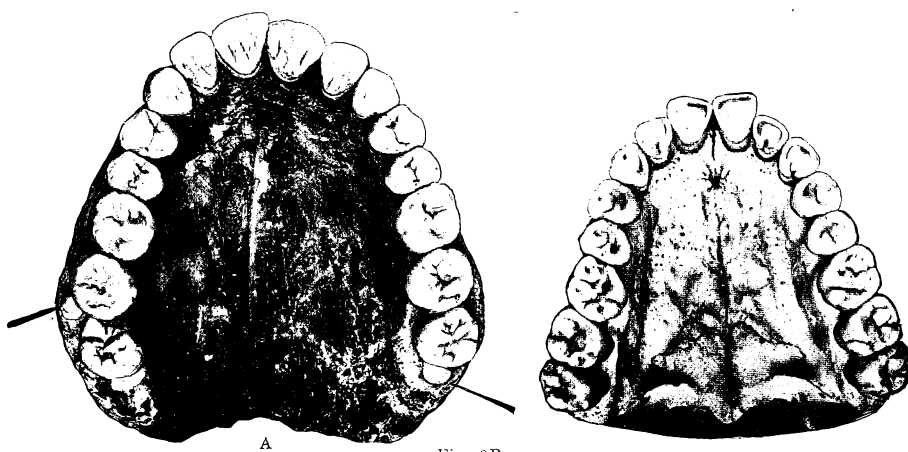
Side view of the two skulls shown in Fig. 7.

lower teeth are found to be in a smaller circle than the upper ones, though the circumference of the lower jaw proper is much larger than that of the upper.



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Fig. 7. In this illustration there are two skulls; one about twenty-five years of age with all the teeth in position and we find the lower teeth leaning inward, while the upper ones lean outward. It is the alveolar process and not the maxillary bone that causes this. When irregularities are corrected the alveolar process is moved and not the maxillary bone proper. The other skull is an old one. The teeth in both jaws have been lost and the alveolar process has been resorbed in both jaws. The outer plate of the upper jaw is more nearly resorbed than the inner plate, but eventually both the plates and the alveolar process become entirely lost. In the lower jaw the outer and inner plates are resorbed about equally. During the original



View of the two upper jaws, the occluding surfaces of the teeth and roofs of the mouths, and the great difference in relative size, are well shown; A has two rudimentary fourth molars.

development the alveolar process of the upper jaw extends outward and downward, and when it is lost the resorption of the under surface of the upper jaw is very slight, as will be seen in the following illustration. Fig. 8. In the lower jaw the process extends upward and the body of the jaw extends outward so that when the process becomes lost in old age, the mandible is very much larger than the upper jaw. It is for this reason that where artificial teeth are not worn in old age the lips are drawn inward and the chin protrudes forward, and if the mandible is carried upward it overlaps the upper jaw. The angle has become obtuse, but if artificial teeth of the proper length be worn, the angle will not change so much.

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Fig. 9 is made from two different skulls photographed on the same plate giving their relative sizes. The larger one (A) is enormous while the smaller one (B) is of about ordinary size. If Dr. Kohler were correct in saying that the size of the bones is diminishing, it would be justifiable to say that the larger skull was one that belonged to the past ages, while the smaller one was of the present.



Fig. 10.

Anterior lateral view of upper and lower jaws, with the external cortical portion of bone covering the roots of the teeth removed, exposing the cancellated tissue, the roots, and the cribriform tube.

But they both lived at the same time and were dissected in the same room.

Close observation of the ancient and modern skulls will demonstrate that the bones of the face and mouth are not deteriorating. The larger mouth here shown is from a skull much greater in size than can be found in the Egyptian collection of the Museum of Nat-

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ural Sciences, and I am almost ready to assert that you will not find a skull as large as this one in any collection of ancient skulls. I hope Dr. Grevers, of Amsterdam, who is with us today and who has measured more skulls scientifically than any man I know of, will measure this skull and see if he can find a larger one in his researches in the different collections of old skulls. This is a recent skull. The man died about eighteen months ago, and there are other large jaws in the same collection from which this was taken.

It has been asserted by many prominent dentists that the third molar is deteriorating. I have examined many Egyptian skulls and



Fig. 11.

Skull of a child about six years' old, showing all the deciduous teeth in position and the developing permanent teeth.

find that the third molar is quite as large now as it was in the Egyptians. In some of the Egyptian skulls I find a little tooth like the one shown in A, Fig. 9, representing a rudimentary fourth molar. In A, Fig. 9, there are two rudimentary fourth molars, and I have seen many skulls dissected lately which had the same number. Therefore, I claim that the teeth are not deteriorating. Dentists seem to think that teeth are deteriorating because of the defective ones they treat. There are thousands of people in every large city who never visit a dentist because they have perfect teeth and perfect arches.

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Dr. Summa asked: We see in the infant skull, before all the teeth are in position that the angle of the mandible is obtuse, then in

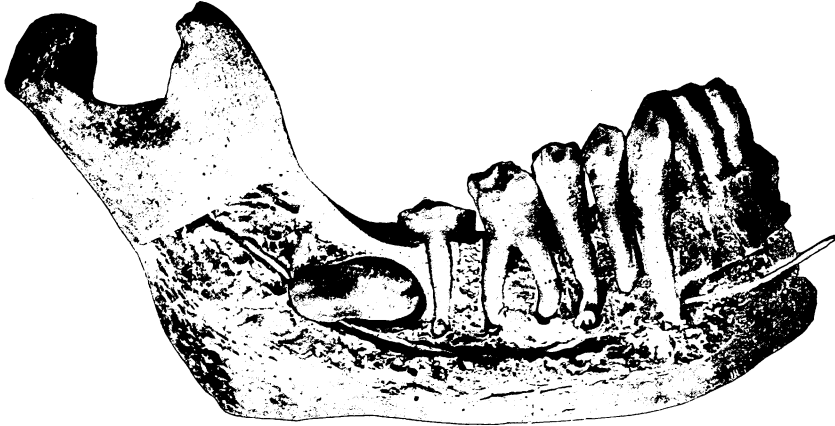


Fig. 12A.

adult life it becomes almost a right angle, when in old age it again becomes obtuse: How do you account for the latter?



Fig. 12B.

Two views of an impacted lower third molar. In position in A; in B the tooth is turned out of its pocket. Part of the distal root of the second molar has been resorbed exposing the root canal, more than causing the devitalization of the tooth, and thus producing neuralgia, induced by the pressure from the impacted tooth.

Dr. Cryer: I believe it is on account of the wearing down of the teeth, and in the endeavor to get the teeth together the mandible



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is carried upward and consequently forward. In these cases, as a rule, if you will open the jaw slightly, you will find the lower teeth are back of the normal occlusion. If the teeth are lost at the age of 24 or 30 and artificial ones of proper length are inserted, and renewed as fast as they wear down, there will be but little change in the angle. In one case I found a cadaver of an old person that had been wearing artificial teeth and the angle was as acute as in a person of forty years.

Fig. 10 is made from a skull where the external plate and a portion of the bone underlying it has been removed, exposing the cancellated tissue of the alveolar process of both jaws. Just above the second molar tooth the true maxilla has been cut away exposing the maxillary sinus showing the thinness of the walls. The cancellated tissue of the alveolar process is well shown between the roots of the teeth. In the lower jaw the arrangement of the cancellated tissue is in a curvature, trabeculae passing from the base upward and forward in a line of the former passage of the teeth as may come forward and upward in their eruption. Near the center of the ramus or at the inferior dental foramen the cribriform tube, generally known as the inferior dental canal, passes downward and curves forward to near the incisor teeth. Just anterior to the canine teeth it usually sends back a recurrent tube with its exit through the mental foramen. The tube is cribriform (sieve-like) in character, and is the passageway for the nerves and vessels going to the roots of the various teeth as well as the general cancellated tissue.

Fig. 11 is made from a skull of about six years of age.

All of the deciduous teeth are in position and the developing ones in view, except the third molar of the lower jaw and the second and third molars of the upper jaw. The germs of the second and third molars of the lower jaw are in the ramus. As the teeth develop they pass down from the ramus and forward to take their proper positions in the mandible; they naturally go in a somewhat curved direction as shown in the last illustration. It will be seen that all the permanent teeth are more or less encased in bony tissue or capsules belonging to the alveolar process, which at this time is in a stage of great growth. The osteoblasts are active. If they should become over stimulated by the extra flow of blood brought to the parts by irritation, it is possible that an over amount of bony tissue would be built around the tooth organs, or it might become more dense than it should be. In such case the capsules of the teeth may become attached to the bony wall or cortical portion of the true bone, and thus be prevented from obtaining their normal position in the jaw. This is one of the causes

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for impacted teeth, or why they erupt in abnormal positions. In fact it is one of the causes of malformation of the mouth.

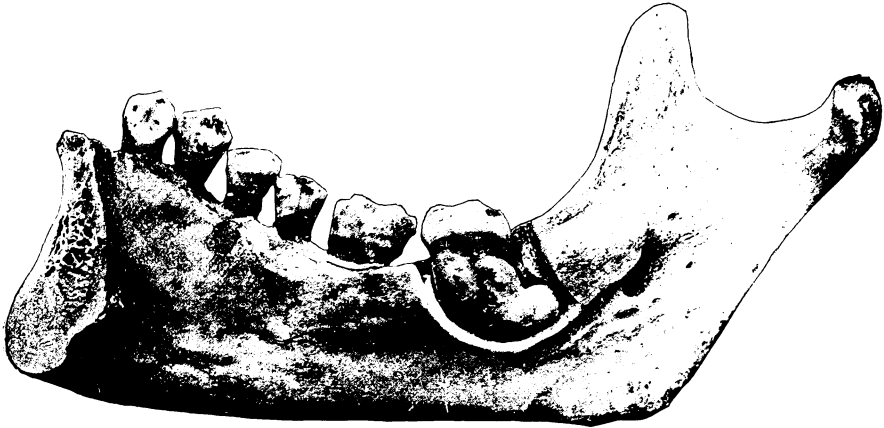


Fig. 13A.

Some of the causes that bring about this inflammatory condition and cause the over production of bone tissue about the tooth germs, may be constitutional, such as syphilis, scarlet fever, etc. When the

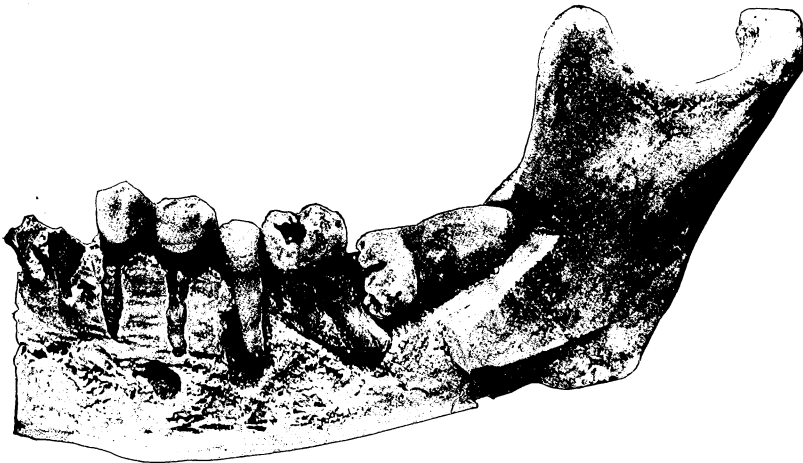


Fig. 13B.

An impacted lower third molar and a lower third molar, with curved and thickened roots, both belonging to the same jaw. The bone is much more compact than normal bone.

cause is local as from diseased deciduous teeth, after they remain in the mouth too long, the proper eruption of the permanent teeth will



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not take place. There may be a good reason for not extracting, but much worse results will follow by allowing the irritation to remain in the mouth.

Suppose a deciduous tooth were to become diseased, the surrounding tissue would be inflamed and the osteoblasts belonging to that region becoming over active and multiplying in great numbers, would build the bone in such a manner that the cancellated tissue would become more compact and be of a less yielding nature; even the cortical bone would become harder. This would have a tendency to retard the eruption of the tooth, or if it be an upper one it might be erupted into the antrum, nasal chamber, or the roof of the mouth. Dr. Grevers has some photographs where two canines have been turned upside down, the cutting edges in the direction of the orbits. There are many similar specimens in the collection from which these illustrations were made. These conditions are brought about by neglecting the deciduous teeth in childhood. Inflamed conditions should not be allowed to remain in or about the jaws, and teeth that cannot be prevented from causing inflammatory conditions should be extracted, although you know the trouble caused by the early loss of these teeth.

When inflammatory conditions have existed in or about this tissue for a time, a great change takes place. Figs. 12 a and b, 13 a and b, and 14, will fully demonstrate this fact. The first one, Fig. 12, shows where a third molar has been impacted lying horizontally with its occluding surface resting against the roots of the second molar. The impacted tooth may not have been the original cause of the irritation, as there was a cause for the impaction, but in later years it must have been a factor which produced a certain amount of irritation. The distal root of the second molar has been resorbed until the pulp canal is exposed, thus causing the devitalization of the molar tooth. The bone around the other roots is not cancellated as is shown in the normal specimen, but the spaces between the trabeculae have become filled and the cancellated bones is more dense, almost like cortical bone.

Fig. 13 is an illustration of where another impacted tooth is associated with a much more dense bone than the illustration just passed.

Fig. 14. The third illustration of this character is taken from a specimen of the lower jaw, cut transversely at the mental foramen. On one side the cortical bone and the cancellated tissue is normal in character. Teeth could be easily moved forward, inward, outward, or backward. Extraction would also be easy as the tissue is elastic. On the other side the bone is dense and the character of the cancel-

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lated tissue is comparatively changed. It would be almost impossible to change the position of the teeth in such a jaw, and the extraction of the teeth would also be difficult as they would be liable to break. As the nerve tubes or canals are encroached upon, neuralgia would be liable to take place in this jaw. The reason for this condition is that the first molar was diseased and allowed to remain as a constant irritant, inducing more blood to the parts and producing over activity of the osteoblasts, etc.

The following illustrations have been made from specimens that were so prepared that the tissue is shown in as nearly normal a condition as possible. The preparations are made in the following man-

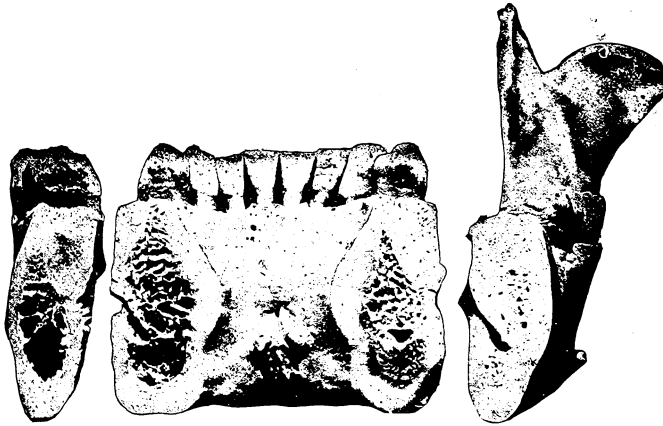


Fig. 14.

Transverse division of a mandible at the mental foramen. The left side is in an almost normal condition, while on the right side the cortical bone thickened and becomes dense, and the cancellated tissue has become filled with secondary bone deposit.

ner: the cadaver is injected as soon after death as convenient, with a solution of formalin, then again with a solution of colored plaster of Paris. The body is covered with vaseline and then bandaged in order to prevent evaporation. It is then placed in a cold storage room at about 15 degrees Fahrenheit. When thoroughly frozen it is ready for sectionizing, which is done with a thin bladed saw with chisel-shaped teeth. In this way the finest bones can be cut without breakage and the brain tissue without displacement.

Fig. 15 is an illustration made from a section that is cut horizontally just above the mylo-hyoid muscle, and is a view looking upward at the base of the tongue, giving a better idea of the true



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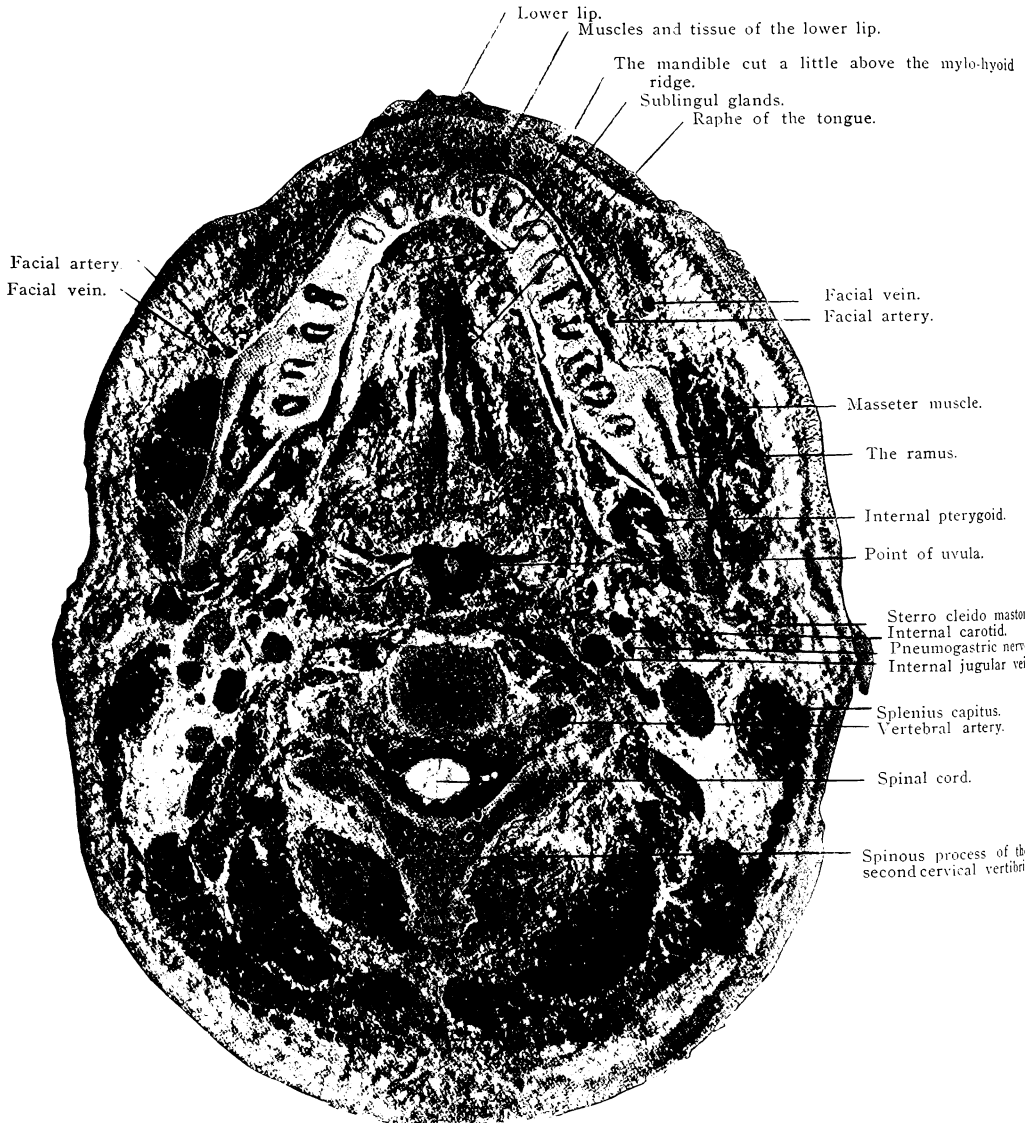


Fig. 15.

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anatomy of this region than would be obtained by the old manner of dissecting. There is not time to go into the general anatomy of the parts.

Fig. 16 is an illustration made from a horizontal section cut above the roots of the upper teeth, exposing the maxillary sinuses, the nasal fossæ, and the under surfaces of the turbinate bones along with other important anatomy of the face, such as the cross sections of some of the muscles of mastication and those associated with the soft palate.

Fig. 17 is an illustration of a horizontal section cut on a level with the upper part of the nasal fossæ and the middle of the orbits. It gives a good idea of the convolutions and other anatomical features of the brain, the ethmoid cells on each side of the upper part of the nose, and the passage of the optic nerve to each eye.

Much has been said at this meeting about the influence of the tongue. The books of anatomy do not give a correct idea of the size and position occupied by the tongue. If we quote Gray, which is the principal text-book used in the dental and medical schools of America, we find the following: The tongue "is situated in the floor of the mouth between the two portions of the body of the lower jaw."

This gives an incorrect idea of the tongue. A better short description would be: the tongue is within the mouth, its base attached to the floor; it fills the oral cavity from the floor to the roof with the slight exception of a small space left between the dorsum of the tongue and the roof of the mouth and extends from the anterior teeth almost to the post-pharyngeal wall and from the teeth on one side to those on the other, and when the teeth are lost it extends into the spaces that were occupied by these teeth until the tongue, cheeks and lips often come in contact or overlap each other.

Fig. 18 is an illustration made from a sagittal section cut through the center of the head. It will be noticed that the teeth are not quite in occlusion and the lips are a little apart; nevertheless it can be observed how completely the mouth is filled by the tongue which extends far back until it nearly comes in contact with the post-pharyngeal wall. The fibers of the tongue will be noticed radiating backward and upward from the genial tubercles. The lower ones are the genio-hyoid; the upper, the genio-hyoglossus.

Anatomists generally describe the mouth as extending back to the pillars of the fauces. It would be better to describe it extending back to nearly the post-pharyngeal wall. The nose should also be described as extending backward to the post-pharyngeal wall instead of the free edge of the internal plate of the pterygoid process.



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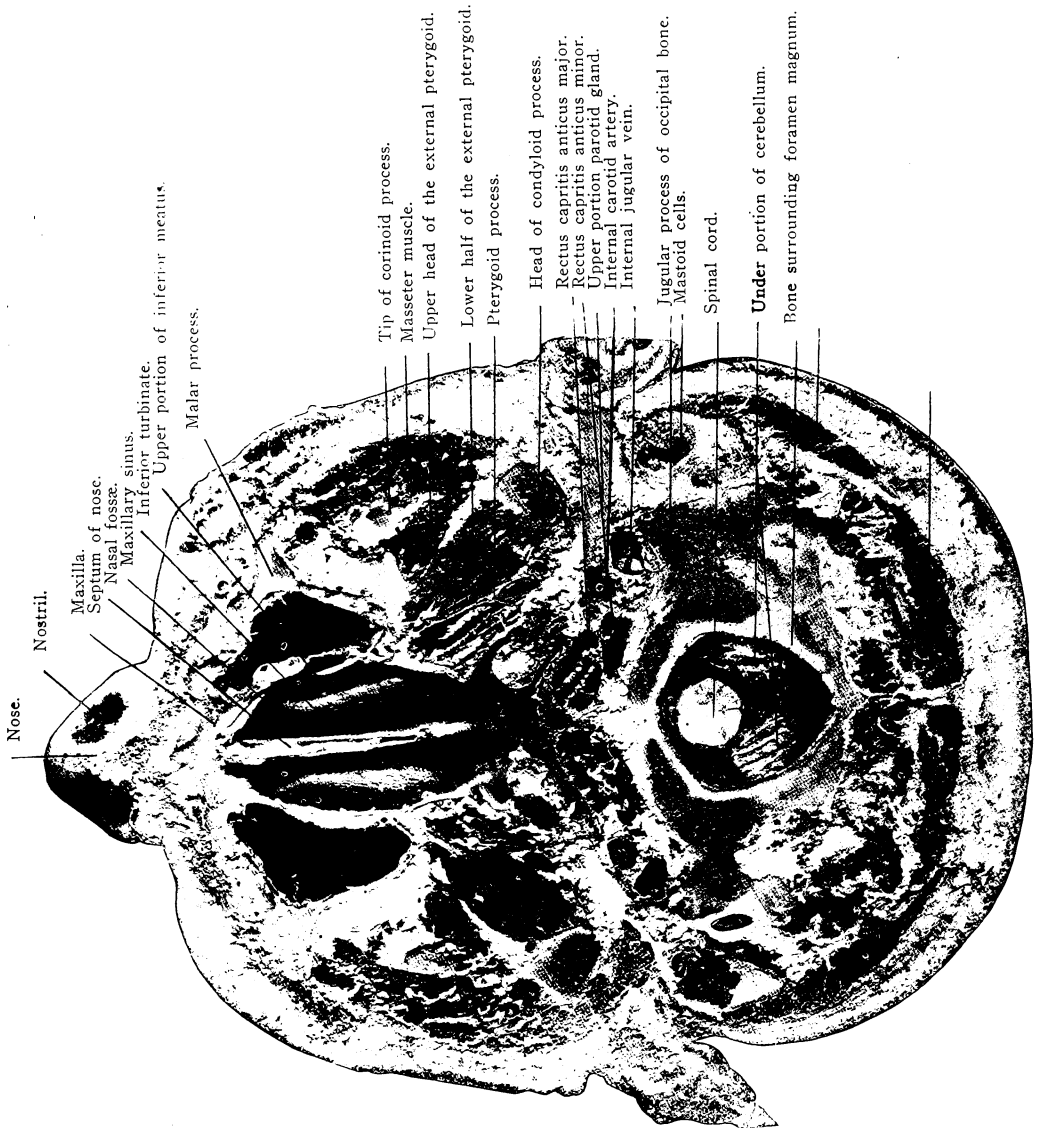


Fig. 16.

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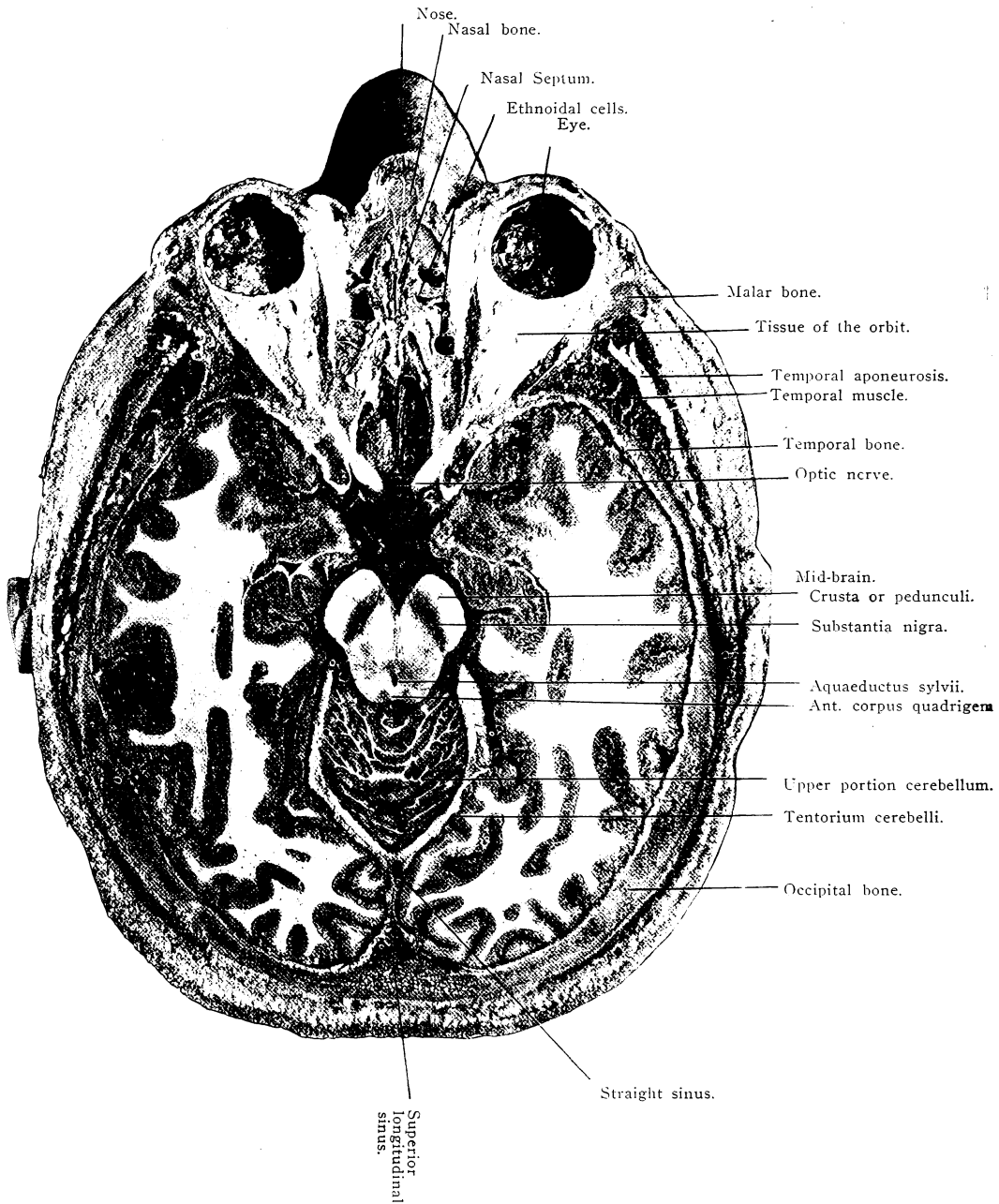


Fig. 17.

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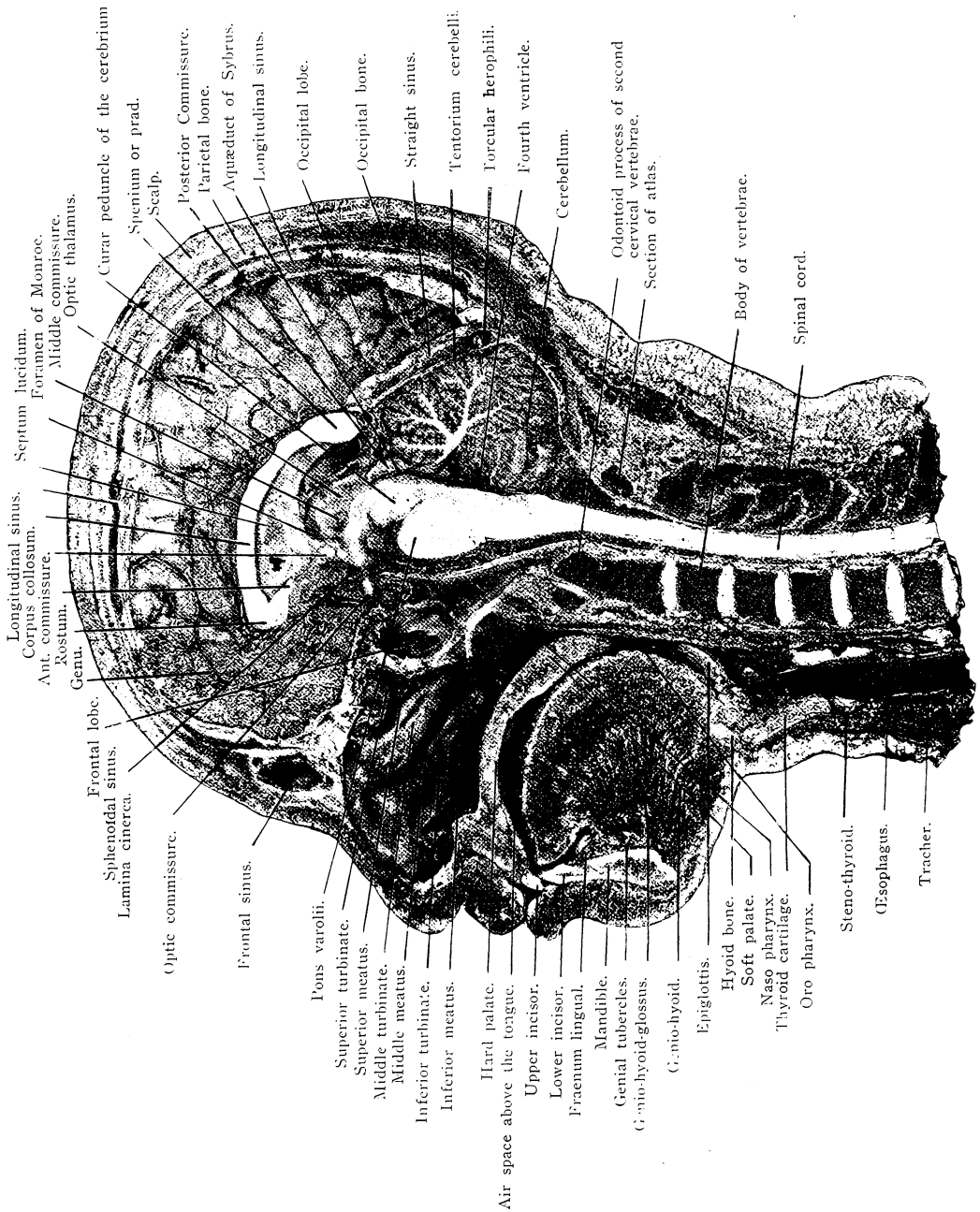


Fig. 18.

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The epiglottis will be noticed at the posterior base of the tongue passing upward and backward. In discussing a paper some time ago, the sudden collapse of a patient was thought by some to be due to the tongue falling backward, which caused the epiglottis to close over the glottis. This I thought was partly a mistake as I do not believe that the epiglottis acts as a lid to the glottis. It is more of a stationary organ and its nearest relation to the glottis is when the larynx is raised toward it; even at that time the epiglottis is carried upward with the base of the tongue and the hyoid bone. Some years ago I made a number of experiments upon several cats and dogs. After placing them under an anesthetic I opened the tissue covering the region of the glottis and epiglottis in order to obtain a general view of the parts, allowing the teeth to remain in occlusion. By passing water into the posterior parts of the mouth with a syringe, deglutition was forced. The water passed backward and downward and in the act of deglutition the folds of the glottis would close the opening, but no special movement of the epiglottis could be observed even when the water was injected between the folds of the glottis. The epiglottis has sometimes been lost in man by disease and traumatism without interfering with the functions of the glottis and in many of the lower animals no epiglottis exists at or near the glottis at the base of the tongue, showing that it is not necessary for this organ to protect the glottis. I have removed the organ from several cats and allowed the parts to heal over with no apparent difference in the deglutition or breathing. As the epiglottis is a concavo-convex organ, with the convex portion toward the mouth, it will act as a shield to the glottis and cause the fluids to go to the right and left as they pass the partly raised tissue surrounding the glottis.

Fig. 19 is an illustration made from a vertical transverse section cut through the frontal sinuses, the orbits, nasal chamber, the maxillary sinuses, the roof of the mouth, the tongue, etc. It shows that the tongue fills the mouth completely in a transverse section, excepting just above the dorsum. The vessels of the tongue are seen on each side of the raphé. It will be noticed that where the lower molars are lost, the tongue sends a small process laterally to partly fill the space. As the tongue naturally fills the space from side to side, the cavity produced by an extracted tooth seems, to the patient, much larger than it really is, but in a few days the tongue sends out a process which partially fills the space and the loss of the tooth is no longer noticed.

It is the opinion of Dr. Grevers and others that the tongue has a great influence in moulding the shape of the mouth. There is no



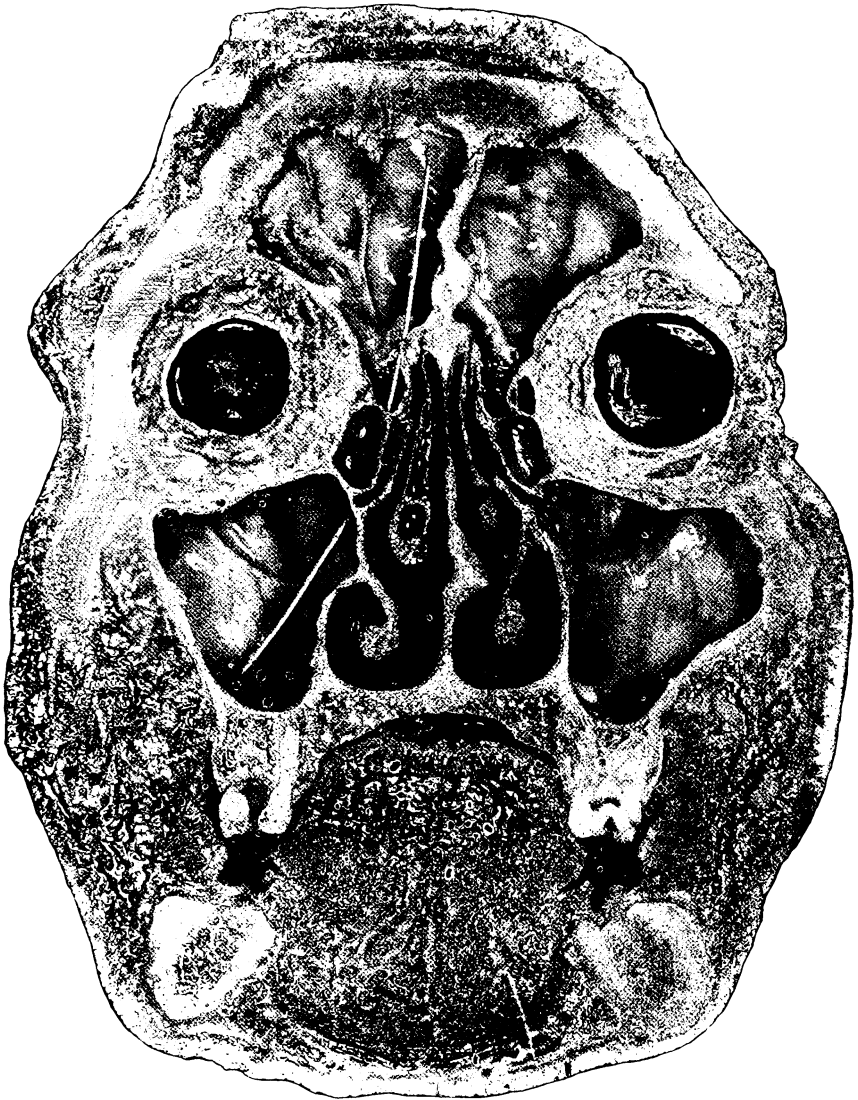


Fig. 19.

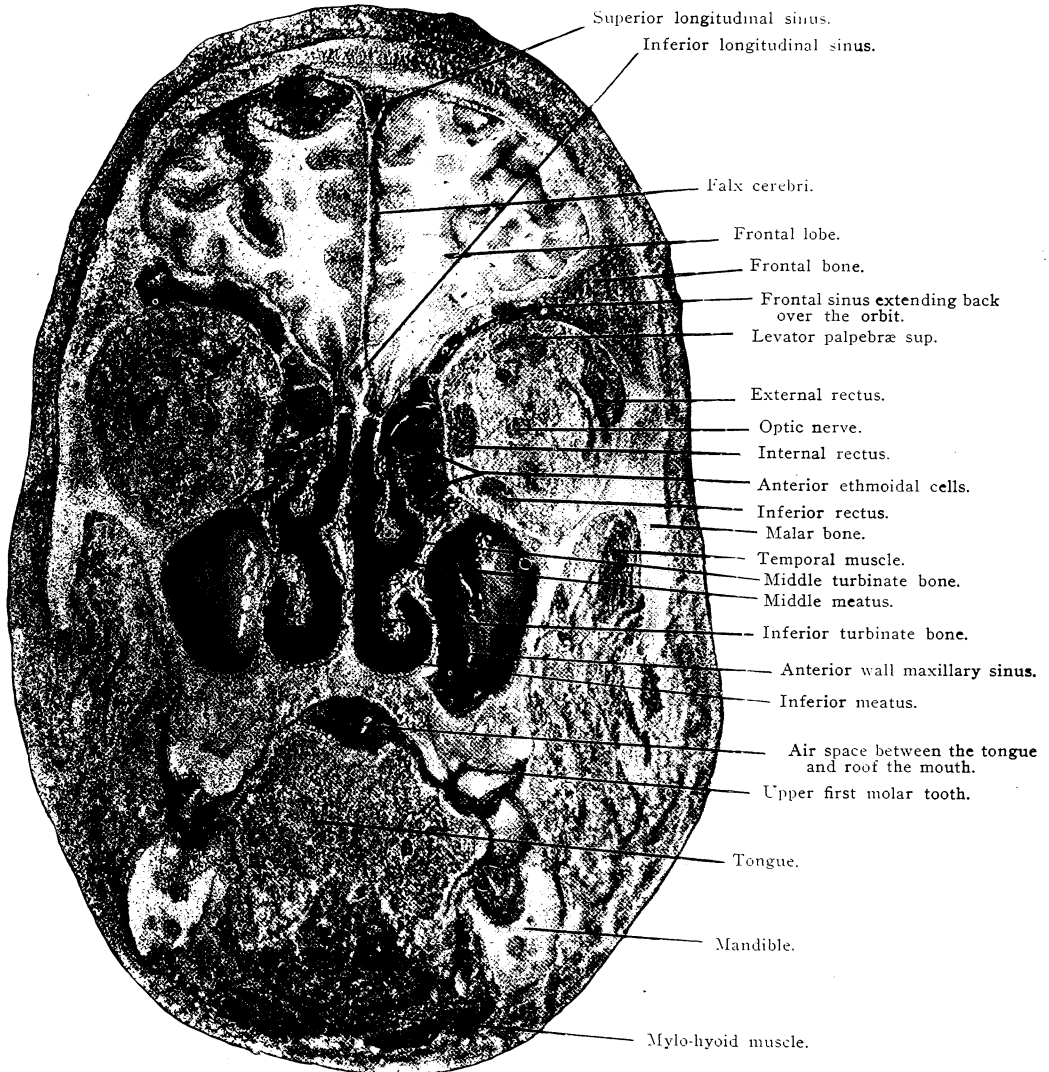


Fig. 20.



Fig. 21.



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doubt that it has some influence, but judging from many sections I am inclined to believe that the mouth has much more to do with modifying the shape of the tongue. Where the mouth is of a typical shape as those shown in the last two illustrations, the tongue is comparatively smooth in its general outline and conforms to the shape of the wall of the mouth and teeth, but as seen in Fig. 19, where two teeth have been lost, there are processes thrown out from the tongue to fill the space as though the pressure upon the balance of the tongue forced this projection into a space where the lateral pressure had been moved.

Fig. 20 is an illustration made from another vertical transverse section where the face has been narrowed, the mouth compressed, and a few teeth lost. The tongue is irregular in its outline, indicating to me that the mouth has had more influence in modifying the tongue than the tongue the mouth.

Fig. 21 is an illustration made from a similar section as that of Fig. 20. The face is so compressed that there is no maxillary sinus on the right side and a very slight one on the left side. A narrow nasal fossa, a deflected septum, deteriorated turbinated bone, etc., will be noticed. The alveolar processes of the upper jaw have been pressed inward, thus forming what is known as a high arch; if these processes were spread outwards into their typical positions, the arch would not be high. The lower jaw is so compressed as to leave little room between its two lateral halves and the narrowed upper mouth for the tongue. Consequently the tongue is compressed and deformed and has apparently had no influence in forming the shape of the mouth.

Fig. 22 is an illustration made also from a narrow faced person with a compressed nasal fossa, a deflected septum, lack of development of the ethmoidal cells, small maxillary sinuses; the alveolar arches are narrow, the tongue compressed, part of it passing out between the jaws until it meets the cheek. When such a condition is found in this region of the skull, it usually indicates that the posterior nares are more or less obstructed with either bony deposit or enlarged adenoid tissue.

Fig. 23 is an illustration made from the same skull as Fig. 22, cut at or near the posterior nares. It will be observed that the nasopharynx is almost filled up with enlarged glandular tissue. This enlargement extends for a considerable distance along the air passage of this region. The passage is so obstructed that it would compel mouth breathing.

Fig. 24 is an illustration made from a vertical transverse section





Fig. 22.

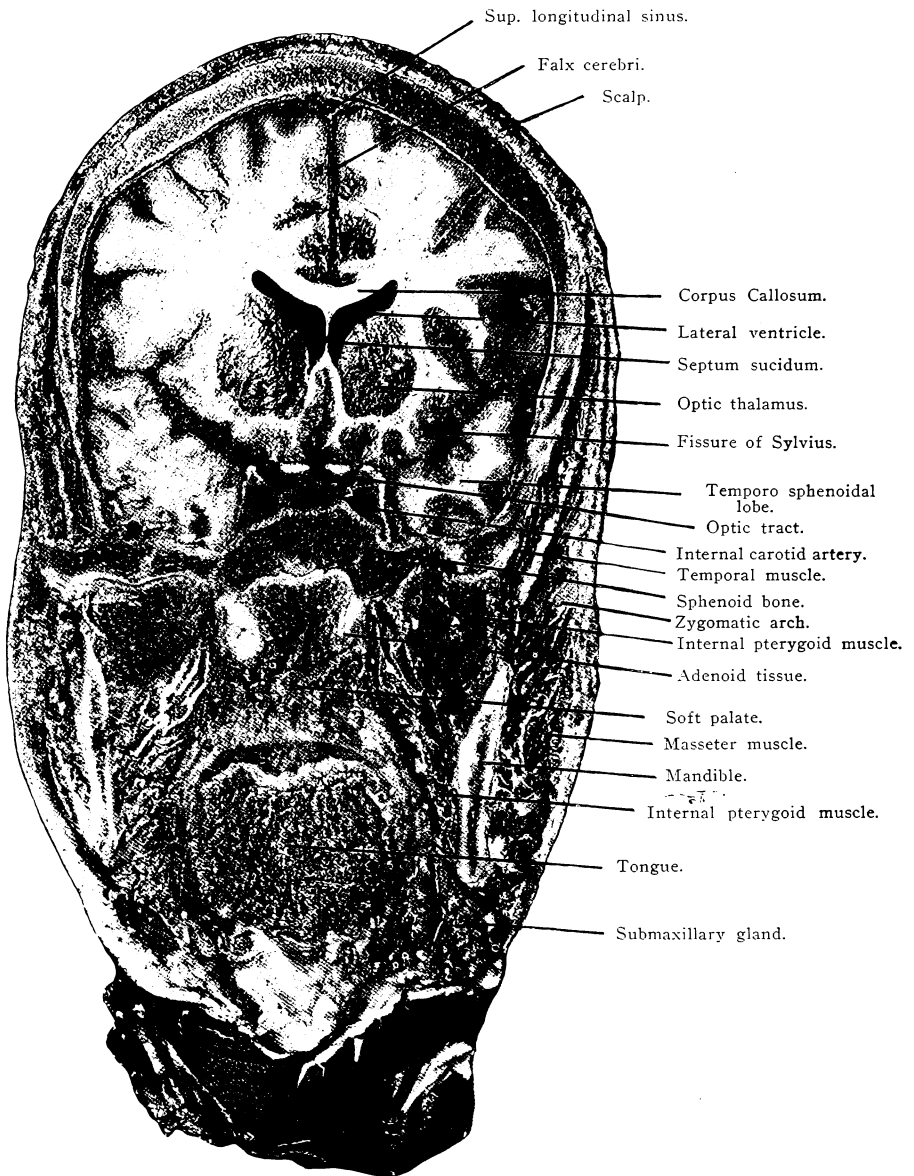


Fig. 23.

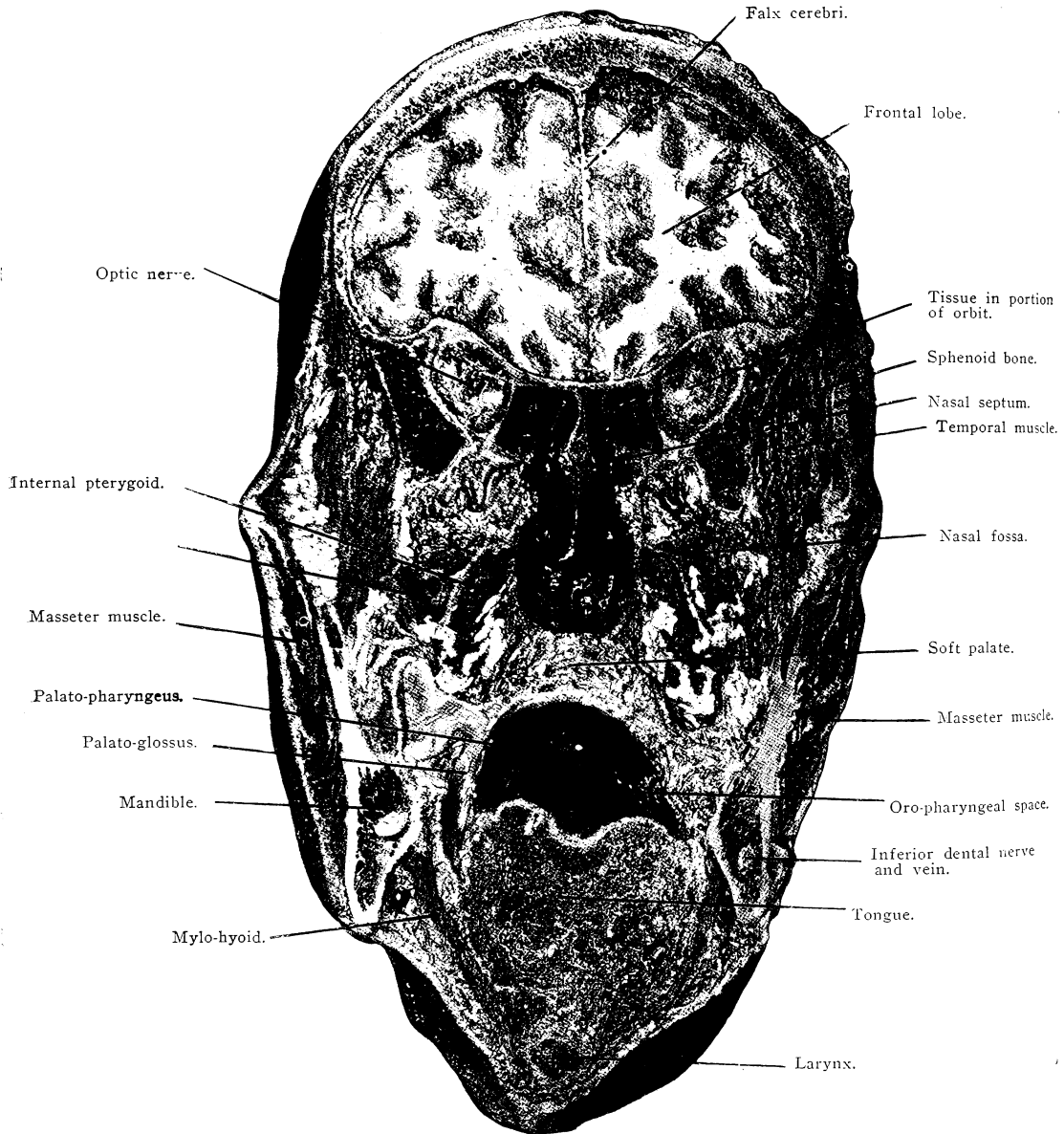


Fig. 24.

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cut in the region of the rami of the mandible showing when the mouth is thrown open the hyoid bone and all that is attached to it are drawn downward. The tongue is drawn from the roof of the mouth thus giving passage way for the air. This also puts the elevating muscles of the tongue, of the hyoid bone, of the pharynx and the other structures that are closely associated with them on a tension. The muscles of mastication are also stretched. In this way the muscles of the face must be influenced to a certain extent, but in my opinion the lack of constant occlusion of the teeth is the greatest factor in not forcing the teeth and the alveolar processes outward, thus causing what is generally termed the high arches of the mouth.

Fig. 25 is an illustration giving an anterior view of a vertical transverse section, made through the frontal lobes, the anterior portion of the sphenotemporal lobes, the sphenoidal sinuses, the nasopharynx, the soft palate, the tongue, the hyoid bone, and the thyroid and cricoid cartilages. It also illustrates sections made through certain bones of the brain case, the temporal muscles, the external and internal pterygoid muscles, the pterygoid processes, the internal maxillary arteries, the rami of the mandible, the submaxillary gland, the thyrohyoid muscle, and the sterno-thyroid muscle. This illustration is taken from an almost typical skull. It is nearly symmetrical. There is plenty of breathing space through the nasopharynx making a marked contrast to Fig. 23 which is cut in about the same region. If an incision be made around the base of the tongue, and that portion of the tongue be removed, it will expose what is usually known as the oro-pharyngeal space as shown in Fig. 26.

Fig. 26 is a similar section to Fig. 25 and affords a view of about the same anatomical structures except that the tongue has been removed. In addition it gives a view of the anatomical structure of the oro-pharyngeal space. In the upper portion of the center of this space will be noticed the uvula, below which and extending downward is the post-pharyngeal wall, and at the bottom of this space may be seen the convex surface of the epiglottis. In the upper and outer corners of the space are the tonsils. To the inner side of the tonsils portions of the palato-pharyngeal muscles are shown, while to the outer side, and slightly covering the tonsils, anteriorly, are the palatoglossus muscles.

Dr. Kohler gave the impression in his paper that dentists were not aware that adenoid enlargements or obstructions of the air passages of the nose and upper part of the pharynx are factors in causing irregularities of the teeth or malformation of the mouth. This is a great mistake, as Prof. Harrison Allen, as early as 1874, taught his den-



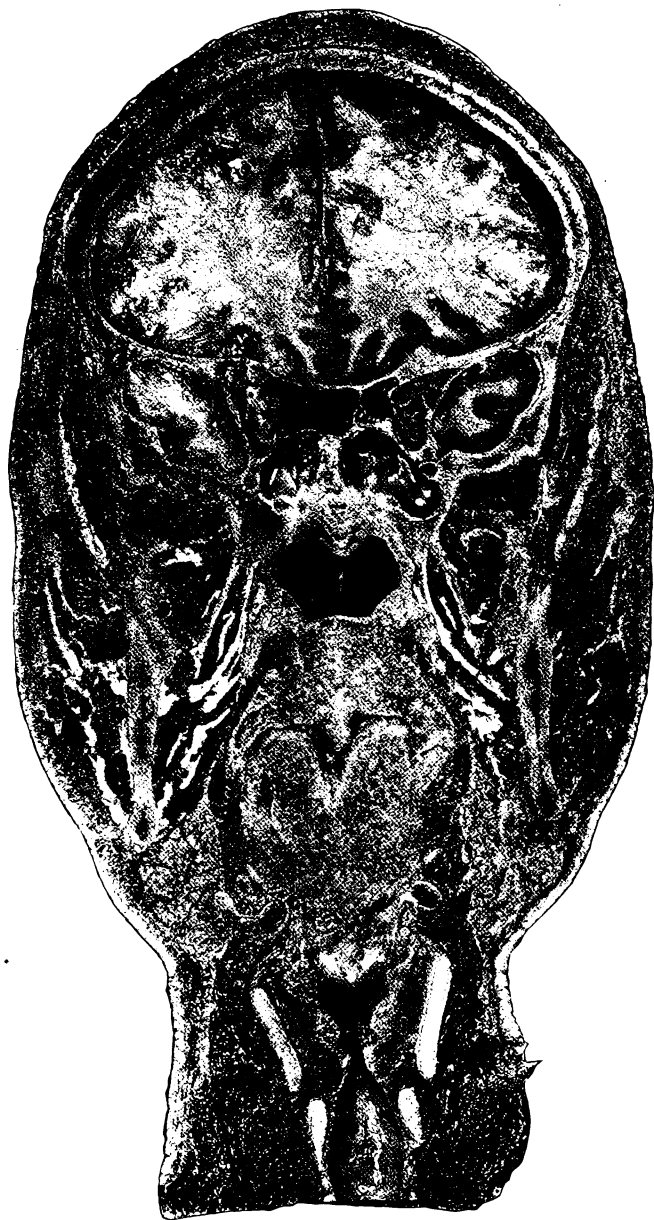


Fig. 25.

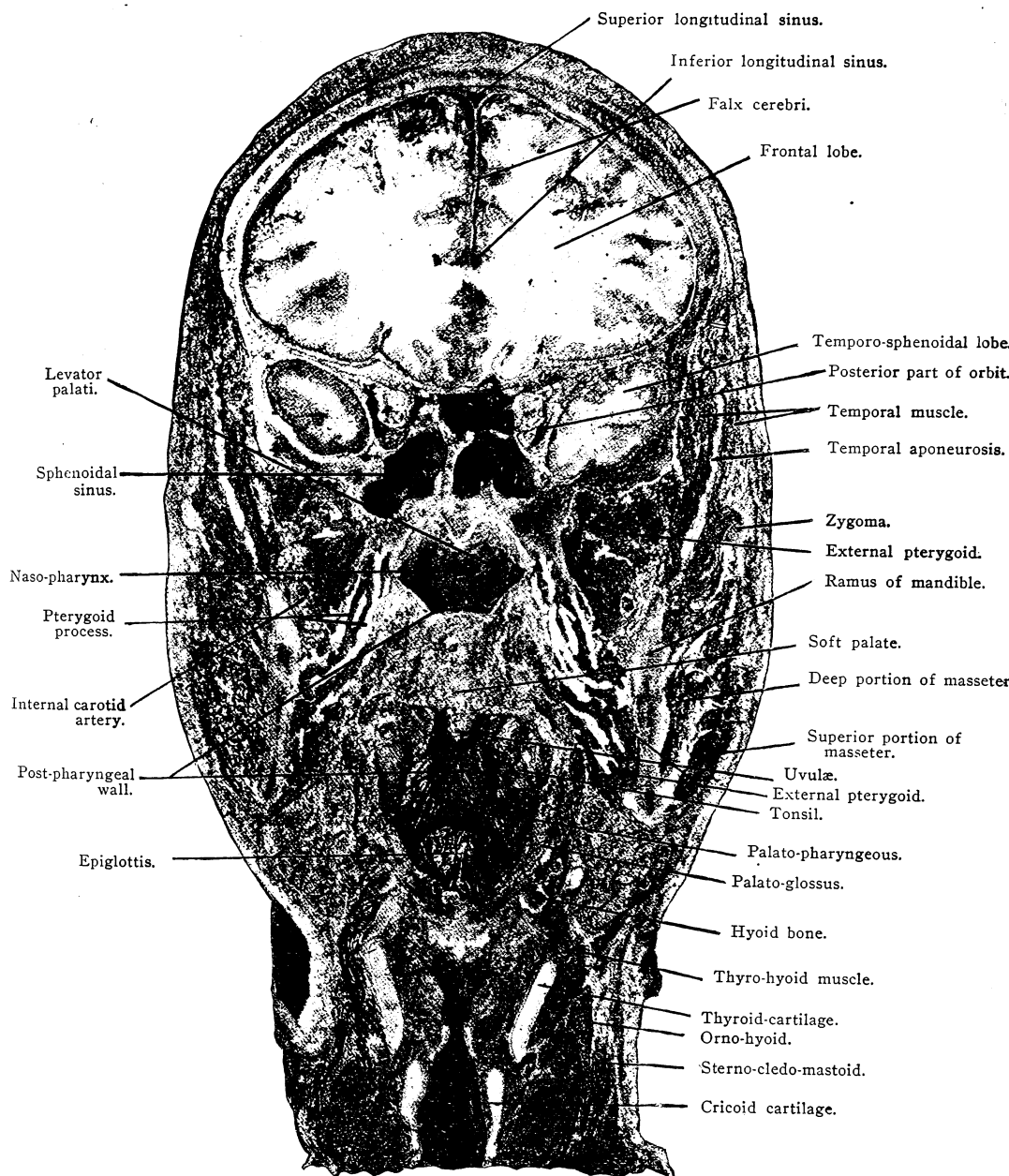


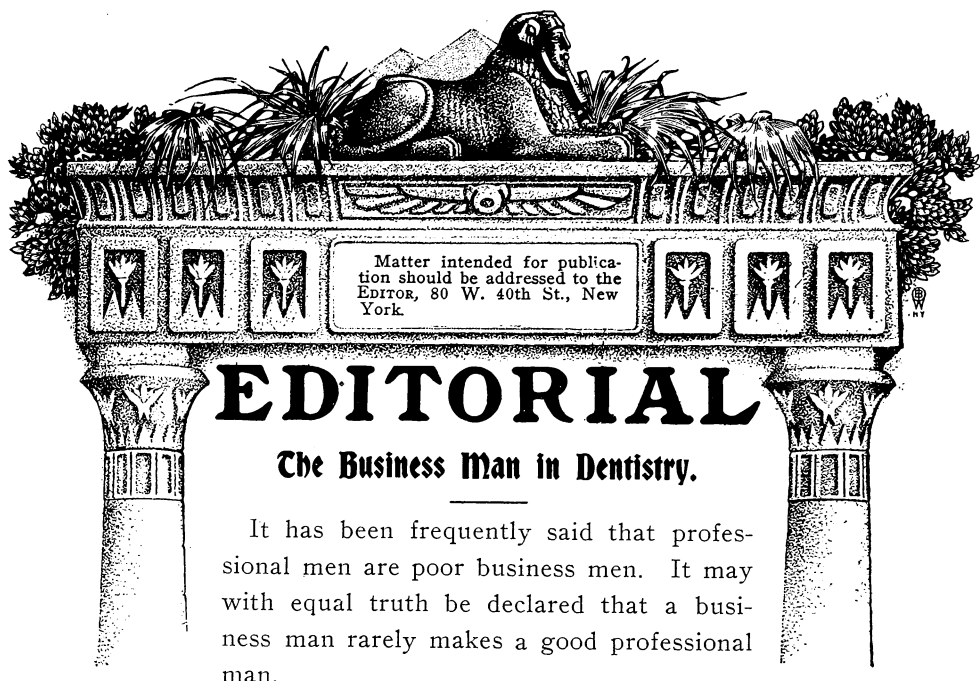
Fig. 26.

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tal class at the Philadelphia Dental College that undue tension of the muscles of the palate would influence the shape of the mouth and position of the teeth, and also that enlargements of the oral tonsils and glandular tissue above the palate have this same influence in producing abnormal shapes of mouth and nasal cavity. This has been recognized by dentists generally, and is recorded in some of their text-books.

It will be very evident from the illustrations given you and the anatomical points brought out, that I consider that the orthodontist should be familiar with the anatomical structures of the bones of the face, and especially those giving support to the alveolar processes of the teeth. Their development, the physiological changes and pathological conditions, both local and constitutional, should be observed. The influence of normal and abnormal muscular action upon the shape of the bones of the jaws and the face should be well considered. Pathological enlargement of glandular tissue, whether it be acute or chronic, should have the closest attention, especially if these conditions will induce mouth-breathing, thus preventing normal occlusion of the teeth. Inflamed conditions of the alveolar processes which are caused by various diseases, etc., should also be treated as this condition will prevent the percussive force of the mandible, through the teeth, against the upper jaw, and whenever this is the case in the growing jaw it will cause malformation of the face and malposition of the teeth. From this standpoint I should consider the orthodontist's first duty to be the correction of pathological conditions of the structures spoken of, before resorting to mechanical means.





It has been frequently said that professional men are poor business men. It may with equal truth be declared that a business man rarely makes a good professional man.

The Metropolis is ever the Mecca towards which avaricious eyes are turned. Fortunes exist and have been made in New York, and the great majority of the discontented throughout the country are eager for an opportunity to walk Broadway or Wall street in search of the golden nuggets with which imagination strews those thoroughfares. What wonder that the provincial dentist, earning a paltry five thousand a year, should desire to establish himself in New York and earn some of those fabulous fees that may so easily be wrung from the millionaires in exchange for amalgam fillings in their molars? None! The only wonder would be that any could succeed in such a venture. The effort has been made by several during the past decade, and it has been of interest to note the methods and progress of at least one or two. It seemed remarkable that any dentist should abandon a practice already established and begin over, merely because rumor states that a limited few—a very limited few—earn a considerable number of thousands annually in this city. It seemed questionable whether, along ethical lines, a practice which would be at all lucrative could be obtained within a





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period of five years by one who was an utter stranger. This supposition, however, overlooked the instincts of the business man. The story of one such man, the details of whose metropolitan career have come under observation, may be instructive.

It is just about five years since he first became one of the several thousand dentists of this section. It is doubtful whether he has achieved that fortune for which he sought, yet he has received at least a few of the larger fees of which he had dreamed. At first he opened a modest office in a good neighborhood and then went to live at a boarding house. This brought a few acquaintances, and by adroitly leading conversations in the dining room into dental channels, with an occasional recitation of the newer dental achievements being accomplished, the deduction being, of course, that the relator was proficient in these more advanced dental operations, attention was directed toward himself. Well managed, such hints attracted patients, and so soon as the mine was thoroughly worked it was always possible to move to a new boarding house, there to find renewed possibilities. Then there were the haunts of men, the cafés attached to the larger hotels, and the chance to become acquainted with the clerks therein. Dental services rendered for such as these, at reduced rates, rendered obligations, payable by the recommending of guests in the hotels, some of whom, unlike the habitués of the boarding houses, had money.

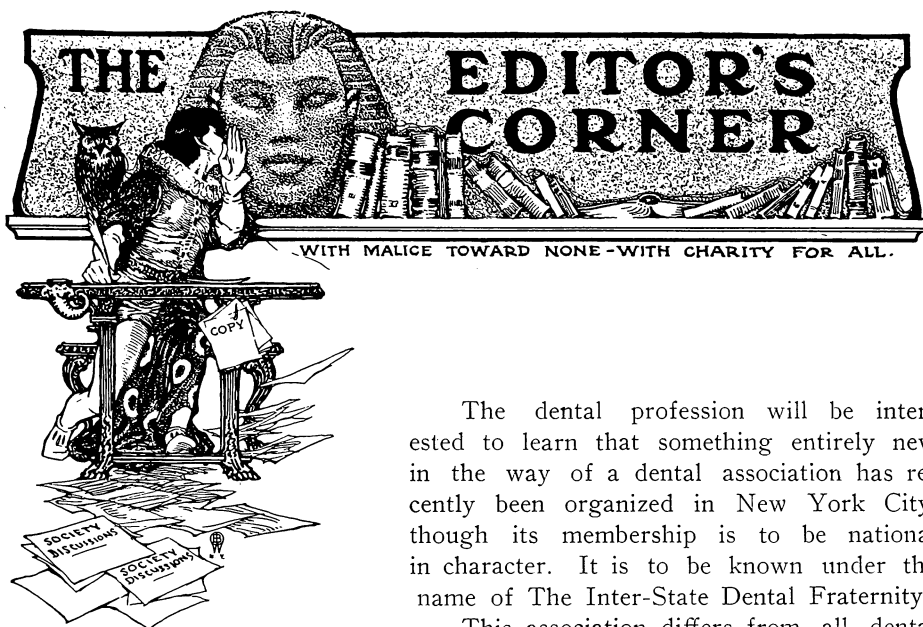
Now it happened that this particular business man was not lacking in skill. He could fill teeth well, regulate teeth well, do crown and bridgework above the average, and in all ways was sufficiently well equipped to have successfully managed a permanent practice. What he lacked was the real professional instinct. He was a dentist, true, but he was preeminently a business man. His chief aim was the acquirement of money. Strangely enough, New Yorkers, especially those that pay large fees, are far from stupid. They quickly discover whether a dentist is working for them or for himself. So it came to pass that when this business dentist for large fees would fill teeth with porcelain, when gold would have served better for less money, the bill was paid, but the patient sought another dentist when next in need. Then there were those who submitted to extensive bridgework affixed to teeth that were so loose they should have been extracted. The fees were large,



but when the abscesses arrived and the bridges, with the roots, were removed, there were other dentists who did the extracting and restoration of the denture. And so with several other unusual or novel operations which patients were persuaded to accept once. They accepted them but once, then looked elsewhere for a dentist. So it has come to pass that it is no uncommon occurrence to have a new patient say: "I am ashamed to acknowledge that I have been in the hands of that 'fakir,' Dr. ———. He fooled me once, but I have had my lesson."

Thus we find that it is possible to be too much of a business man when essaying to practice a profession; and the moral of the tale is, that perhaps it might pay better in the end for a professional man to be professional man.





The Inter-State Dental Fraternity.

The dental profession will be interested to learn that something entirely new in the way of a dental association has recently been organized in New York City, though its membership is to be national in character. It is to be known under the name of The Inter-State Dental Fraternity.

This association differs from all dental societies at present in existence in several vital respects. In the first place, whilst scientific work is not barred, it is to be made secondary to social and fraternal relations among the members. We give the constitution as recently adopted and call attention to some of the unique features. The Fraternity will hold its chief meeting annually at the same time and place with the National Dental Association, but will in no sense be a rival of that body. On the contrary, it will furnish the one thing that has been lacking at our National meetings, namely social intercourse. The meeting of the fraternity will take the form of a banquet. In addition to this annual meeting, the constitution permits the members in each State to hold local meetings, likewise around the festive board. The spirit of fraternal trustworthiness is accentuated by the fact that members are introduced by a single sponsor and without any reference to a membership committee. The sponsor thus becomes surety for his candidate. Perhaps the chief novelty in this constitution is the effort to obviate any possibility of politics, there being no permanent presiding officer. At the first meeting, a large number of members from various States in the Union besides New York and New Jersey were nominated, and the prospect is that there will be a perfect rush for membership by the best known men in dentistry, so that the first annual banquet will undoubtedly be a brilliant function.



ARTICLE 1. NAME.

Constitution. *Section 1.* The name of this organization shall be The Inter-State Dental Fraternity.

ARTICLE 2. OBJECTS.

Section 1. The objects of this organization shall be to foster fraternal and social relations between dentists, and to encourage and aid the progress of dental art and science.

Section 2. Individual preferment, by what is known as political methods, is expressly forbidden, in accentuation of which idea there shall be no permanent single head to the organization.

ARTICLE 3. MEMBERSHIP.

Section 1. There shall be two classes of members; active and honorary.

Section 2. Any reputable legal practitioner of dentistry, resident of the United States or Canada, shall be eligible for active membership, if proposed by a member of the Fraternity in good standing.

Section 3. Elections of members shall occur only at the annual meetings, except during the period prior to the first annual meeting, during which time they may occur at any meeting held in New York City.

Section 4. Elections of members shall occur at the same meeting at which the candidates are proposed, the sponsor assuming full responsibility for his candidate's reputability and eligibility. Nine-tenths of the votes of those present and voting will be required to elect, and the election must be by ballot, if a ballot be demanded by any one member; otherwise it may be by acclamation.

Section 5. Honorary membership in the Fraternity may be bestowed upon any dentist, physician, surgeon, chemist or other scientist who may have contributed especially towards the advancement of the art and science of dentistry.

Section 6. Any member may nominate a candidate for honorary membership, stating his reasons for demanding the honor, and addressing the same to the secretary of the Fraternity. Upon receipt of such nomination the secretary shall prepare a form of ballot and mail same to every member of the Fraternity, in good standing. - Nine-tenths of these mail ballots received within thirty days will be required to elect to honorary membership.

ARTICLE 4. OFFICERS.

Section 1. The officers of the Fraternity shall include vice-presidents in accordance with section 2 of this article, a treasurer, and a secretary.

Section 2. There shall be a vice-president elected to represent each State or Territory in the United States and each Province of Canada in which there shall be five or more members of the Fraternity, and these



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vice-presidents jointly with the secretary and treasurer shall constitute the Board of Governors; singly, each vice-president shall be the executive officer of his State, Territory or Province.

Section 3. At the annual meeting, and at all local meetings the presiding officer shall be known as the Chairman, and he shall be chosen by acclamation, or if demanded by ballot, at the time and place of the meeting, his tenure of the office expiring with the meeting. In cases where the meeting take the form of a banquet, the Chairman will be the toast-master and Master of Ceremonies.

ARTICLE 5. DUTIES OF OFFICERS.

Section 1. The control of the Fraternity shall be vested in the Board of Governors which shall comprise the full list of vice-presidents. The Board should meet just prior to the annual meeting to arrange and provide for the proper conduct of the annual meeting and the financial and executive management of the same. It shall appoint a committee of three to act as auditors for the ensuing year; and it shall discuss any questions of business or policy that may arise, but no material alteration in the plans, policies or scope of the Fraternity shall have force until passed by vote at the annual meeting by the general body. Each vice-president shall act in a similar executive capacity, organizing, arranging and financing the local meetings within his own territory, the same to be conducted without draft on the main treasury. The Board of Governors shall fill vacancies in the offices occurring by death or retirement during the year, the poll being conducted by mail.

Section 2. The secretary shall conduct the correspondence of the Fraternity, edit matter intended for publication, send out notices of the annual meetings and of the Board of Governors, and keep a record of the annual meetings and of such local meetings as may be transmitted to him in writing by the vice-presidents.

Section 3. The treasurer shall be the custodian of the funds and property of the Fraternity, and shall pay all bills when duly audited.

Section 4. The auditing committee shall examine and audit all bills and if found correct authorize payment.

ARTICLE-6. ELECTION OF OFFICERS.

Section 1. Elections of officers shall occur at the annual meetings. An informal ballot shall be taken, and should no one receive a majority of the votes cast, those three receiving the highest number of votes shall be declared formally nominated and a second ballot taken. Should there be no election on this ballot, the lowest shall be dropped and the other two only be considered in subsequent ballots.

Section 2. Upon proof, satisfactory to the members present at the annual meeting, that any member had solicited votes for himself, or had



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connived at such solicitation in his behalf by others, such member shall be declared ineligible for election to any office during that meeting; if such proof be received after election, but prior to the adjournment of the meeting, said election shall be declared void and a new poll ordered.

ARTICLE 7. MEETINGS.

Section 1. The annual meeting shall occur at the time and place of the meeting of the National Dental Association, the exact day to be set by the Board of Governors. When possible, said meeting shall take the form of a banquet, the Board or Governors to decide whether the entertainment shall be in the order of a professional discussion, or merely after dinner speeches, or both.

Section 2. Local meetings may be held monthly or at the option of the membership in each State and will be similar in character with the annual meeting, except that the expenses of each local meeting shall be shared by those present without draft on the Fraternity treasury. Two or more States may unite in their local meetings, in which case the vice-presidents of such States will jointly act as the executive body controlling such joint meetings.

Section 3. All members of the Fraternity shall have the right to attend any meeting, local or annual, without special invitation, but no one, not a member, may attend unless as a special guest of the occasion and invited by the vice-president, or by vote at a previous meeting.

ARTICLE 8. DUES.

Section 1. The dues shall be \$3 annually, payable in advance at each annual meeting.

What a Dentist Should Not Do. He should never approach a patient with unwashed hands, unclean nails or soiled linen.

He should never approach a patient without a clean napkin in his left hand and a mouth mirror in the right.

He should never put his finger in a patient's mouth when an instrument or mirror will do as well.

He should never undertake the operation of filling until all salivary calculus has been removed, the teeth thoroughly cleansed and the gums made healthy.

He should never apply the rubber dam to a single tooth in preparing or inserting a filling when it is possible to include the adjacent teeth.

He should never attempt to make arsenical applications in inaccessible cavities without having first applied the rubber dam.

He should never apply arsenious acid to a congested pulp.

He should never attempt the treatment of pulpless teeth until he has thoroughly cleansed the carious cavity.



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He should never hermetically seal a pulpless tooth when putrescent pulp tissue remains in the canals or where gases from the decomposition of the pulp are suspected.

He should never attempt the treatment of pulp canals without the rubber dam upon the tooth.

He should never leave caries in any part of a cavity even though its removal would result in the exposure of the pulp.

He should never attempt to cap pulps which have been exposed for any great period of time and have been the seat of pain.

He should never use powerful drugs carelessly.

He should never deceive his patients or in any way take advantage of their ignorance.

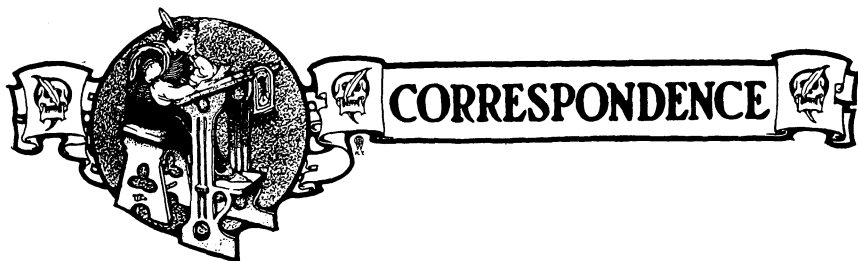
He should never forget that the poor and needy are entitled to the same courteous consideration which is shown the rich and influential.

He should never use tobacco until his day's work is done.

He should never forget that the dentist is expected to be a gentleman.

—*Dr. E. T. Darby in Penn Dental Journal.*





The Tesla Coil in X-Ray Work.

Editor ITEMS OF INTEREST.

In November last Dr. Custer was the essayist at the meeting of the Second District Dental Society of New York, and the subject presented was "The X-Rays in Dentistry." At the conclusion of the reading of his paper, the subject was discussed by the members present.

Not having had the pleasure and the benefit of being present, and yet taking issue with the essayist upon several somewhat important points brought out in his paper, and, moreover, having been personally referred to by Dr. Custer, I would beg leave to present my views to the members of said society, as well as to the talented essayist himself, upon the subject of the "Tesla Coil."

I must premise with a few words of history: The discovery of the Roentgen Ray was given to the world in December, '95. Immediately perceiving its value in dentistry, I set about to undertake its study, and my first difficulty lay in the selection of a suitable apparatus.

The static machine was rejected for practically the same reasons that stand against it at this date.

The Runkorff coil *was* only operative upon a direct current, and as I was supplied with the alternating current, I concluded a Tesla coil was best adapted to my environments, and I therefore installed one.

This coil was run for five consecutive years without ever giving me any trouble whatever, save once, when one of its connections became unsoldered, and I repaired it myself within a few minutes. At all other times during all that period it answered to the closure of the switch. All those who can say as much for *any other coil* will please hold up their right hands. I see none. That is what I expected. During this period the *break* required no repairs nor renewals, and practically no attention. So much for the operation and reliability of the machine.

Dr. Custer states that the current upon a Tesla coil is "erratic." To this I take exception merely upon the ground that during five years



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of constant use I never found it so, and during that period I made hundreds of exposures and demonstrated it to others innumerable times.

Consequently, I am inclined to believe (and my experience justifies such belief) that his trouble lay not in the Tesla coil "per se" but for some reason unknown to respondent, inherent in his own individual apparatus.

Again, the doctor urges against the coil its destruction of tubes. This I grant I found a serious objection at first, and therefore put my wits to work to learn the cause, and finally succeeded, as described in a paper read before the National Dental Association in 1899. After adopting this device I rarely lost a tube.

Now to go back a little: In 1896 there were, as I said before, the static machine, the Tesla coil and the Rumkorff coil, each capable of generating X-Rays in a Crookes tube, and I firmly believe that the Tesla coil was capable of as good results as either of the others, and it held its own against the Rumkorff just so long as that used a mechanical break. But the moment that the "Wehnelt" interruptor was brought out, the Tesla coil became a back number, and that is the whole truth of the matter.

Whereas my old Tesla coil had a spark length of eight inches, my new installation consists of a fifteen-inch Rumkorff, equipped with a mercury break interruptor, this so far having proven more satisfactory than either the Wehnelt or Caldwell, both of which I have for experimental work and comparative tests.

New Orleans, April 3, 1903. C. EDMUND KELLS, JR., D.D.S.

Celluloid.

Editor ITEMS OF INTEREST.

The one great objection to celluloid is, or was when I used it fifteen years ago, its discolorations, due to absorbing oral fluids. Dr. Bouche in ITEMS OF INTEREST for April says that some improvements have been made in this material (or at least that a good deal of work and experiment has been done with a view to improving it), but he does not say whether or not this great objection has been thoroughly removed. If the improved French celluloid, of which he speaks, is minus this evil and if the company making it will put it up in form for dentists' use, the material may once more gain some popularity, despite its other objectionable features, but will never displace vulcanite.

CORRESPONDENCE

I do not give easy credence to Dr. Bouche's statement that celluloid is stronger than rubber. My impression of it, when I used it, was quite the opposite of this; and I have observed that the few celluloid plates which have come under my notice during the past fifteen years have largely shed their teeth.

I think I may speak with authority when I say that it requires for working as much time and more skill than rubber. Though it does not consume an hour and a half of time in the vulcanizer, it does require nearly two hours to dry the model and investment to the point where all moisture has been evaporated as steam and the heat raised to 320° F. If the drying is done much more quickly than this, the plaster shrinks from the inner walls of the flask and thus the investment becomes loose. You cannot raise the heat of plaster above boiling point until all its water is evaporated, which for investments in flasks requires over an hour. And though drying a model hardens it, it also warps it, because heat contracts plaster and the greatest heat is that nearest the borders.

Even when a model of plaster-of-paris is thus hardened, and even though it be of builder's plaster (which sets a little harder than dental plaster), the model will be severely crushed out of shape unless the heat be raised to 300° F. or more for closing flask. Permit me here to quote from my article on Celluloid in Richardson's "Mechanical Dentistry" (p. 656 of 5th ed.): "A piece of celluloid (about one-quarter of an inch square) was placed in a flask heated to 320° F., no cavity being left in the plaster to receive the celluloid. Closed in ten minutes. Result: it had sunk for itself a bed in the hard plaster, flowing but little." This experiment was made with plasterers' plaster which sets as hard as builders'. As this was true of a plaster hardened by drying to 320° F. and of celluloid subjected to this heat for ten minutes, what must be the crushing of models when not hardened by drying and when a low heat is used for closing flask?

I take issue with Dr. Bouche when he says that "builders' plaster will give a model sufficiently hard." My experiments prove that it is not hard enough to mould rubber, much less celluloid. The plaster which I have lately put on the market, which by a little patient manipulation for a few minutes can be made to set as hard as Mellott's metal (over fourfold harder than plaster of paris) is sufficiently hard for this purpose, even without drying.

Drying of model and investment is, however, a necessity in order to have the celluloid moulded at a heat which will cause it to retain its new form. For, if moulded at a low heat, it is apt to slightly relapse into the shape of the blank. But as a heat of 320° for more than ten minutes robs it of its beautiful pink and brings on a duller and more



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vermillion color (which in still longer time turns to brown), it demands considerable skill in the operator to get the flask closed and cooled in this brief period.

STEWART J. SPENCE.

Harriman, Tenn.

Editor ITEMS OF INTEREST.

In answer to a request by Dr. Morgan, of Vincennes, Ind., in February number as to the merits of celluloid, I would give my experiences.

I must say to Dr. Bouche, of Winnipeg, that he has had better success than I have had with Dr. McClelland's outfit.

I bought one of Dr. J. A. McClelland's celluloid presses and after seeing him use it two or three times I proceeded to use it myself. His theory of getting rid of the camphor is very plausible, but whether correct or not I do not know.

The first disadvantage is that it takes an exceedingly long time to dry the flask. The air in the laboratory becomes hot and oppressive, and I have noticed that both I and my assistant have had our heads throbbing from the effects of sitting in the laboratory while it is heating. It is hard to regulate the heat after putting the celluloid blank in the flask, and should it catch fire, the model will be spoiled as well as your office being full of those dreadful camphor fumes. It is difficult to get celluloid blanks to suit all cases. I remember one case where I had to pad the gums all around. We added extra pieces of celluloid, moistened with camphor as Dr. McClelland advises, but when the denture was finished, a black line showed where each piece was added, and ultimately each line developed into a crack and opened after it had been worn some months. If the heat is too great, yet not sufficient to cause combustion of the blank, the celluloid will be crystallized and in a very short time the teeth will break off, the celluloid chipping and coming away with the pins in the teeth.

I have never yet seen a denture of celluloid that after being worn for a few months did not darken around the gum margins.

There are a few redeeming features to celluloid dentures—the gums are very natural, it is exceedingly strong, and I have seen lower dentures that have seemed to have a greater adhesion to the gums than any rubber plate, but with all these there is yet to be discovered a means whereby celluloid can be used to make it practicable for dental purposes.

I have given up the use of celluloid entirely, and until some man discovers a better method than Dr. McClelland's I shall have to depend upon pink rubber, porcelain or enamel.



CORRESPONDENCE

You will pardon me if I have spoken too strongly, but I am a young practitioner, and a few celluloid dentures with open seams, black gums and teeth coming off would soon ruin any young man's practice.

A. W. L. GILPIN.

Michigan City, Ind., April 15, 1903.

Mallet of Gold.

Editor ITEMS OF INTEREST.

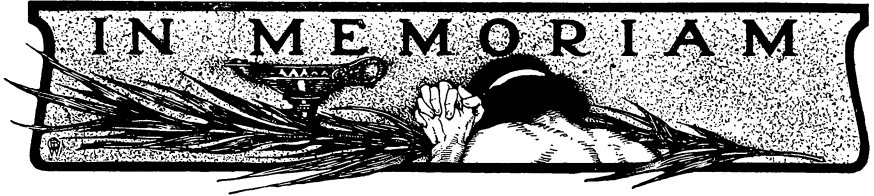
On page 244 of the April issue of your esteemed journal you publish an article by Dr. A. T. Bigelow, of St. Paul, Minn., entitled "A New Mallet for Gold." In an article by Dr. C. F. W. Boedecker, formerly of New York, and now of Berlin, entitled, "Methods of Filling With Gold and About a New Gold," and published in the *Odontologische Blätter* of Berlin in 1899, I find on page 280 a cut of a mallet which is almost identical to the one pictured in connection with Dr. Bigelow's article. Dr. Boedecker describes his mallet as follows: "For a number of years I have experimented with a mallet not fastened to a stiff handle, but connected with it by a pair of steel springs (about) three-quarters of an inch wide and four inches long. With this mallet it is very easy to give a correct blow to the end of the mallet," etc.

Respectfully,

St. Louis, Mo.

HERMAN PRINZ.





Stewart Bailey Palmer, M.D.S.

A noble man who in practicing our profession bestowed honor on it has passed away from our midst.

Stewart Bailey Palmer, M.D.S., died at his home in Syracuse, N. Y., on March 30, 1903, aged 80 years, 6 months and 30 days.

He was one of the pioneers of dentistry in the section of the country where he lived and where he has had a long professional life, marked by the constant endeavor to keep his work up to the highest possible standard of professional excellence. That he succeeded in this is evidenced by the high esteem in which he was held by all those on whom he displayed his manipulative skill.

Dr. Palmer was one of those men whom circumstances and environment cannot suppress. Born and brought up on a farm, far away from any village, he received but scanty training from the country school of the district where he resided, as his duties at home prevented him from attending the school regularly, but the limited education acquired there did not satisfy his thirst for knowledge, for he was a born investigator, and when quite a boy the copy of *Comstock's Philosophy* which was placed in his hands at school fired his ambition to know all about the various subjects of which it treated, and thenceforth every moment he could spare from his regular duties was devoted to study and the acquisition of knowledge. In this way he qualified for a course at the Cortland Academy, a high grade school which he entered, and there he took one term of instruction, which was all he could afford at that time. He finished this course in 1846, being then 24 years of age, but he was still unsatisfied and he longed to be able to study and experiment along the lines of the knowledge he had acquired there. To do this he must have tools and materials, but he had no means with which to get them. Shortly after he left school he was offered the position of teacher of the district school at Tully for the next year, 1847. This he gladly accepted. Here was an opportunity to get tools and whatever he wanted



to pursue the studies that would give him the knowledge for which he longed. With the means thus acquired and amid many difficulties, he went to work and succeeded in constructing working models of most of the implements and machines described and pictured in *Comstock's Philosophy*, which was the leading text book used in the schools at that time. Among those he constructed were a working model of a steam engine, an electric machine, a galvanic battery, etc. Here he was storing up useful practical knowledge and gaining manipulative skill in departments of science which were soon to be put to a practical test that was to determine the destiny of his life. His teeth were of poor quality and many of them were destroyed by disease early in life.

During the year 1847, while he was teaching school, he had nine of them extracted, but he could not then afford to pay for an artificial set of teeth. At that time the plates on which artificial teeth were mounted were made of either gold or silver. Up to this time he had never been inside of a dental laboratory nor had he examined closely an artificial denture. The loss of his teeth made him very uncomfortable, and he had no money to have an artificial set made. As he became skilful in the use of tools and the discomfort of his mouth would annoy him, he often wondered if he could not make something that would give relief. While he was in this condition, he happened to go into a drug store in Syracuse and saw lying in a case on the counter a book with a set of artificial teeth delineated on the cover. He asked the druggist to let him see it, which he did, and upon examining it he found it was a treatise on dentistry, with illustrations describing the mode of constructing artificial dentures. He asked if the book was for sale and was told that it was, and the price was five dollars. He did not have that much money with him, but he went to a friend of his father's in that town and borrowed three dollars from him and went to the drug store and bought that book. He studied the contents until he thought he had acquired the knowledge he wanted and determined to try to make a set for his mouth. He hammered out a plate from a silver dollar on an anvil in a blacksmith's shop, and thus equipped commenced to make a set of artificial teeth to supply the deficiency in his own mouth. He succeeded in doing this, and so well that he was solicited to make several artificial dentures for other people. In all the cases of this kind that he undertook his success was so complete that he determined to adopt dentistry as the occupation of his life; and thus he embarked in a calling in which he was destined to become celebrated.

Having decided upon this course, he devoted all of his indomitable energy to acquire a thorough knowledge of all the best methods as practiced by the eminent men of his chosen calling in those days. To gain



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this information so much desired, he sought and obtained interviews with all the distinguished dentists he could reach; and it is needless to write that he succeeded in obtaining what he sought.

In the following year, 1848, he became associated in dental practice with Dr. John L. Allen at Fabius, which association continued until 1850, when he started in practice by himself in Lafayette. In the same year he married Miss Elizabeth Jane Savery, now deceased.

In 1851 he moved to Tully and remained in practice there until 1866, when he removed to Syracuse and entered into partnership with Dr. Amos Wescott, with whom he remained until 1868, when they separated and he opened an office for himself, and from that time until he retired, about two months before his death, a period of thirty-five years, he continued to practice his profession in the city of Syracuse, making altogether a practice of fifty-five years.

He has stated that from the moment he entered the dental profession his education has been a continuous advance in his profession throughout the whole of this long term. He said he was constantly stimulated by a desire for thorough knowledge and aided by dental literature and attendance upon dental meetings. Early in his practice he became a member of the American Dental Association, joining the latter in 1864 and always retaining his membership. In 1876 he was elected a member of the New York Odontological Society. He assisted in the organization of the Dental Society of the State of New York in 1858. In 1868 he received from the State Society (N. Y.) the degree of M.D.S., master of dental surgery. He was also an officer of the Fifth District Dental Society of the State of New York and a member of the Syracuse Dental Society. In 1872 he was elected a member of the Board of Censors of the Dental Society of the State of New York, and he continued a member of that board until 1895, when the Legislature of New York gave the power of granting licenses to practice dentistry to the regents of the university and created a Board of Examiners in Dentistry to examine the candidates applying for such license. Dr. Palmer was appointed a member of that board when it was organized, and continued in that capacity until he died.

During the whole of his long professional career he continued to be a close student in the different departments of science, particularly in those that could in any way be utilized in practice. In the early part of his professional life his investigations were principally carried on in the departments of mechanics and chemistry, but later they were directed to the subject of electricity, in which branch of science he became an enthusiastic student and investigator, which resulted in his promulgating the theory of "Vital Electricity" and its application to the cure of disease,



particularly to those diseases that are treated by the dentists. In this direction he claimed to have made some important discoveries. Like all men who advance new ideas, he met with those who opposed his views. But Dr. Palmer was always careful and patient, and never put forth any theory until he was thoroughly convinced that it was a correct one, and then, having reached his conclusions and having promulgated them, he did not seem to care to argue with those who opposed, but contented himself with stating them clearly and then leaving the matter there with the remark, "*Well, time will tell whether I am right or not, and I can afford to wait.*" Above all things he disliked a wrangle or a quarrel. In fact, he was always a peacemaker, for nothing seemed to distress him so much as a dispute or quarrel; and when one occurred where he was, either among his friends or during the meeting of a society, his whole energies and influence would be at once exerted in the cause of peace and good will. Dr. Palmer was an extensive contributor to the literature of his profession, and his papers are a valuable part of its scientific accumulations.

Some years ago, Dr. Palmer, in connection with Dr. Flagg, of Philadelphia, for whom he always had a strong friendship, announced their doctrine of "The New Departure" in dental practice, which announcement caused the greatest sensation that has ever occurred in the dental profession. The New Departure was received with violent opposition by a large majority of the best practitioners of that time, and it would not have been considered at all if it had not been for the great respect that was entertained for the character and attainments of Dr. Palmer, its originator. But he was known to be a careful and reliable investigator and a man whom everybody had faith in, and therefore it was considered, and investigation and time proved that the new doctrine was a true one. And Dr. Palmer lived to see it acknowledged as such, so that his motto, "*Well, time will tell whether I am right or not,*" was verified and time developed the correctness of his theory and his justification in presenting it.

There was combined in his character a large amount of amiability and gentleness, with great firmness of character and an indomitable will when it became necessary to use it. But in his ordinary intercourse with his fellowmen he was courteous, with a most happy, genial manner that made him a most charming and intelligent companion.

Dr. Palmer's father, Avery F. Palmer, was born in Stonington, Conn., where their ancestor, Walter Palmer, from England, first settled in 1629. His great-grandfather, the Rev. Wait Palmer, was pastor of the First Baptist Church of North Stonington. Dr. S. B. Palmer was associated with the First Presbyterian Church of Syracuse.





ITEMS OF INTEREST

Dr. Palmer was a large-hearted man, with a nature overflowing with kindness, good will, and affection, and to his intimates and friends his personality will ever be a most pleasant memory, for he was one of the truest of men where he gave his friendship or love.

As regards his domestic relations, one who knew him and his family intimately has said of his household that it was the most harmonious and the happiest one he had ever known. This could hardly have been otherwise when it is known what a fortunate man he was in obtaining the kind of wife that he did, for in her he had a most congenial and charming companion for the first forty years of his professional life, and it was a fearful blow to him when he lost her. She was a woman blessed with a most cheerful and affectionate disposition, and, like her brother, the Hon. John Savory, of Cato, N. Y., gifted with large mental capacity. She was devoted to her husband, of whom she was very proud, and had entire faith in his ability and the feasibility of his projects. She was always ready to help him in any way that would contribute to the success of his undertakings, and this was done with a cheerful willingness and ready intelligence that made her a most efficient co-worker, and she was never so happy as when she was helping him in this way. After the death of his wife, his sister, Mrs. S. C. Brooks, took charge of his household, and he had her affectionate and devoted care and companionship to the end of his life.

His official duties as a dental examiner for registration to practice dentistry brought him into contact with many young men. In these and all other young practitioners he was always deeply interested, and to many of them his kindly advice and assistance was always encouraging and sometimes he was able to direct their career to a successful result, notably in the cases of Dr. John S. Marshall, of Chicago, for it was upon his recommendation that Dr. Alport engaged him as his assistant. Dr. Marshall eventually became Dr. Alport's successor and thus was enabled to attain an eminent position and a reputation that is world renowned.

Such evidences of Dr. Palmer's "helping hand" could be multiplied *ad infinitum* and will make the memory of him dear in many a grateful heart.

His intercourse with his professional brethren was of that character that always commands respect, and those of them who knew him well will remember the acquaintance with him as a bright green spot in their lives. To his fellowtownsmen his death is an irreparable loss, for he had been a member of their community for over thirty-five years and was known to all the principal people of the town, who respected and honored him as one of their most distinguished citizens. His death is felt to be



a great loss by a large number of his fellow citizens, and the large attendance at his funeral has shown their appreciation of his worth and their desire to do honor to his memory.

On the day of his funeral his body lay in state at the First Presbyterian Church, where the services were held, and hundreds of his fellow citizens assembled there to take a last look at his kindly familiar face. The Syracuse Dental Society attended in a body, and there were also present over a hundred dentists from different parts of the country. The organizations represented at the funeral services were the National Dental Association, the New York State Dental Society, the Fourth, Fifth, and Seventh Dental District Societies of New York, the Institute of Stomatology of the City of New York, and the Syracuse Dental Society.

The funeral sermon was preached by the Rev. Dr. George B. Spaulding, who, in a discourse full of emotional eloquence, declared that the death of Dr. Palmer while it is a serious loss to the dental profession was a great calamity to the large circle of devoted friends who were most affectionately attached to him by the sympathetic loveliness of his character.

Dr. Spaulding said he had lost a dear friend. "I knew and believed in him as if he had been my father. He was a man without guile whom you believed in implicitly the moment you looked in his honest, trust-inspiring eyes."

The honorary pallbearers were Dr. O. J. Gross, of Schenectady; Dr. A. M. Wright, of Troy; Dr. Frank French, of Rochester, who were Dr. Palmer's associates on the board of the State Dental Examiners; and Dr. R. H. Hoffheinz, of Rochester, the president of the New York State Dental Society. The active bearers were Dr. J. H. Dower, Dr. J. E. Cummings, Dr. G. H. Butler, Dr. A. F. Smith, and Dr. C. H. Barnes, all of Syracuse, and Dr. A. D. Wells, of Skaneateles.

The body was taken to Tully for burial, and all the dentists present at the funeral escorted the body from the church to the railroad station.

The case of Dr. Palmer is the only instance in the history of the dental profession where the death of one of its members has created the demonstration of sympathy and sorrow in so large a proportion of a community as large as that of Syracuse; and it illustrates the magnetic character of the man and the influence his splendid qualities had upon the community in which he lived. Hundreds of letters of sympathy and condolence are being received by his friends, many of them paying the highest tribute to his worth and ability. One from Dr. Farrar gives expression to this sentiment: "The great dentist, with his smiling face, his very thoughts could be read by looking in his eyes, he will long live among the thinkers of the profession."





ITEMS OF INTEREST

The Rev. George B. Spalding, D.D., his pastor, writes: "His death leaves a great break in the army of dentists. I wish we had more like him."

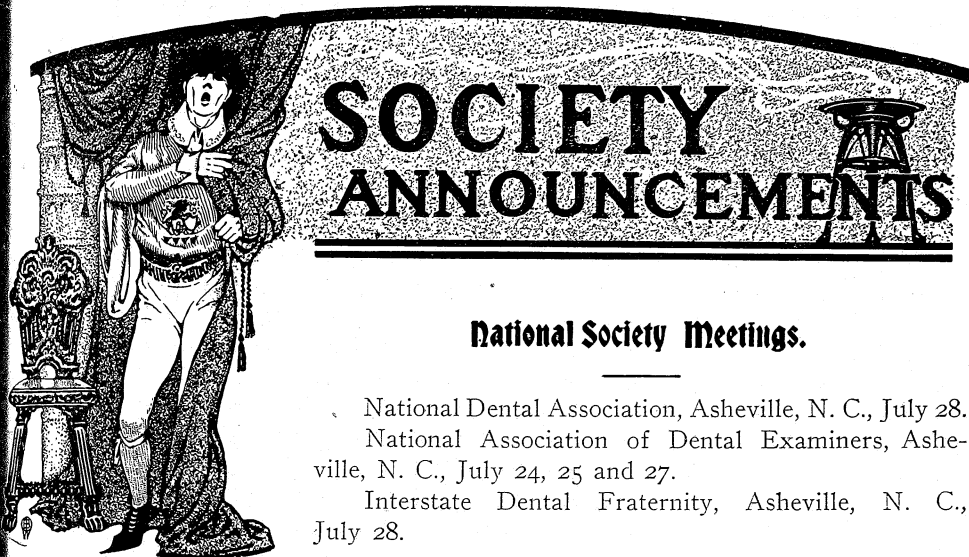
Dr. Truman says of him: "He has been to me the embodiment of all that was to be found in dentistry. He has ever been faithful to it, as he has been faithful to the light that made brilliant his inner being and from there reflected to an unbelieving professional world. He was free from dishonesty and hypocrisy. He has a clear record. His death ends a noble life on earth, but does not end the great cycle of an infinite mind."

Thus those who knew him speak of him, all eulogistic of his beautiful character and the splendid gifts he employed so wisely for the benefit of humanity. Requiescat in pace.

Samuel Grant Grove.

Dr. Samuel Grant Grove died at St. Luke's Hospital, Cedar Rapids, Iowa, on February 22, 1903, from burns received in the Clifton Hotel fire in that city on the morning of February 20, 1903. He was born near Chambersburg, Pa., April 2, 1868. He came west to Sterling, Ill., in 1889 and in 1893 began the study of dentistry in the office of his brother, Dr. W. A. Grove in Tipton, Iowa. Following this preliminary training, he entered the Northwest University Dental School, Chicago, Ill., and graduated there in 1896, and began the practice of his profession in Cedar Rapids, Iowa. He was kind-hearted, genial, and popular, and his abilities won for him a large and select practice. He united with the First Christian Church of Sterling, Ill., was a member of the Iowa State Dental Society, the Northern Iowa Dental Society, a charter member of the Cedar Rapids Dental Society, and also a member of the Crescent Lodge, A. F. and A. M. and the Eastern Star Order. He is survived by three sisters and three brothers, who, together with a host of friends, deeply mourn his untimely and sad death.





National Society Meetings.

- National Dental Association, Asheville, N. C., July 28.
- National Association of Dental Examiners, Asheville, N. C., July 24, 25 and 27.
- Interstate Dental Fraternity, Asheville, N. C., July 28.

State Society Meetings.

- Arkansas State Dental Association, Little Rock, May 12, 13, 14.
- California State Dental Society, San Francisco, June.
- Colorado State Dental Association, Denver, June 16, 17, 18.
- Florida State Dental Society, Seabreeze Beach, May 27.
- Georgia State Dental Society, Tallulah Falls, June 9.
- Idaho State Dental Society, Boise City, June 9.
- Illinois State Dental Society, Bloomington, May 12, 13, 14.
- Indiana State Dental Association, Indianapolis, June 30, July 1, 2.
- Kentucky State Dental Association, Bowling Green, May 25, 26, 27.
- Maine Dental Society, July 21, 22, 23, Kineo, Moosehead Lake.
- Massachusetts Dental Society, Boston, June 3, 4.
- Michigan Dental Association, Petoskey, July 7, 8, 9.
- Minnesota State Dental Association, Minneapolis, Sept. 1.
- Mississippi Dental Association, Vicksburg, May 19.
- Missouri State Dental Association, Kansas City, May 19, 20, 21.
- Nebraska State Dental Society, Lincoln, May 18.
- New Hampshire State Dental Society, Manchester, May 13, 14, 15.
- New Jersey State Dental Society, Asbury Park, July 15, 16, 17.
- New York State Dental Society, Albany, May 13, 14.





Ohio State Dental Society, Columbus, Dec. 1, 2, 3.

Tennessee Dental Association, Chattanooga.

Texas State Dental Association, Houston, May 14, 15, 16, 1903.

Virginia State Dental Association, Hot Springs, July 22-24.

New York State Dental Society.

The thirty-fifth annual meeting of the New York State Dental Society will be held in the Assembly Hall, Hotel Ten Eyck, Albany, N. J., May 13 and 14, 1903. Special rates have been secured at the hotel, also special railroad rates on the certificate plan on all railroads. The business committee have arranged the following programme:

President's address, R. H. Hofheinz, D.D.S., Rochester, N. Y. Report of Correspondent, H. D. Hatch, D.D.S., New York city; discussion opened by Wm. Carr, D.D.S., New York city. Report Committee on Practice, A. R. Cooke, D.D.S., Syracuse, N. Y.; discussion opened by C. H. Barnes, D.D.S., Syracuse, N. Y.; essay, subject to be announced, E. C. Kirk, D.D.S., Philadelphia, Pa.; discussion opened by Wm. Jarvie, M.D.S., Brooklyn, N. Y., followed by J. A. Libby, D.D.S., Pittsburg, Pa. Essay, "Two Crowns," an illustrated talk, R. M. Sanger, D.D.S., E. Orange, N. J.; discussion opened by W. J. Turner, D.D.S., Brooklyn, N. Y. Essay, subject to be announced, J. E. Line, D.D.S., Rochester, N. Y.; discussion opened by W. C. Barrett, D.D.S., Buffalo, N. Y. Essay, "The Trained Dental Nurse," M. L. Rhein, D.D.S., New York city; discussion opened by John I. Hart, D.D.S., New York city. Essay, "Practical Demonstrations of the Roentgen Rays in Dentistry," F. T. Van Woert, M.D.S., Brooklyn, N. Y.; discussion opened by F. W. Low, D.D.S., Buffalo, N. Y. Essay, "Construction of Inlays Without a Furnace," J. F. Knapp, D.D.S., Geneva, N. Y.; discussion opened by C. K. Van Vleck, D.D.S., Hudson, N. Y.

W. A. WHITE, D.D.S., Sec'y,

R. H. HOFHEINZ, D.D.S., Pres., .

Rochester, N. Y.

Central Michigan Dental Association.

The Central Michigan Dental Association will hold its next meeting in Grand Ledge, Mich., May 13-14. There will be special features at the banquet and an interesting programme is assured. Arrange to attend.

Remember, at Grand Ledge, May 13 and 14.

Ionia, Mich.

P. L. CAMBEL, Secy.



Illinois State Dental Society.

The thirty-ninth annual meeting of the Illinois State Dental Society will be held in Bloomington May 12, 13, and 14. A large program of interesting essays and clinics has been prepared and a splendid meeting is expected.

The railroads throughout the State and from St. Louis will make a rate of a fare and one-third, certificate plan, for the round trip. All are cordially invited. Remember the date.

HART J. GOSLEE, Secretary.

A. H. PECK, President.

Maine Dental Society.

The Maine Dental Society will hold its thirty-eighth annual meeting at Kineo, Moosehead Lake, July 21, 22 and 23, 1903.

Portland, Maine.

H. A. KELLEY, Secy.

Oklahoma Dental Association.

The date of the next session of the Oklahoma Dental Association has been changed from May 5 and 6 to May 12 and 13. Session will be held at Oklahoma City, O. T.

Norman, Okla.

P. H. PENDELTON, Secy.

Texas State Dental Association.

The twenty-third annual meeting of the Texas State Dental Association will be held in the city of Houston, May 14, 15, and 16. This meeting promises to be the best ever held in Texas. All members of the profession are invited to attend.

BUSH JONES, Sec'y.

Dallas, Tex.

Kansas State Dental Association.

The thirty-second annual meeting of the Kansas State Dental Association will be held at Emporia, Kansas, on May 14, 15, and 16.

Lawrence, Kansas.

GEO. A. EASTERLY, Sec'y.





The Florida State Dental Society.

The twentieth annual meeting of the Florida State Dental Society will be held at Seabreeze Beach, May 27, 1903.

List of standing committees, 1902-3:

Operative Dentistry—Dr. J. E. Chase, Ocala, chairman; Dr. W. G. Mason, Tampa, secretary.

Dental Education and Literature—Dr. W. E. Driscoll, Braidentown, chairman; Dr. Wilmer S. Hall, Pensacola, secretary.

Essays and Voluntary Papers—Dr. R. L. McMullen, Clearwater, chairman; Dr. Alton B. Whitman, Orlando, secretary.

Pathology and Surgery—Dr. J. E. Miller, Palm Beach, chairman; Dr. J. A. Giddens, Tampa, secretary.

Physiology and Etiology—Dr. R. A. Shine, Tallahassee, chairman; Dr. E. M. Sanderson, Jacksonville, secretary.

Dental Chemistry and Therapeutics—Dr. H. R. Estes, Palatka, chairman; Dr. L. C. Elkins, St. Augustine, secretary.

Mechanical Dentistry—Dr. Carroll H. Frink, Fernandina, chairman; Dr. Guy C. Estes, Palatka, secretary.

Clinics—Dr. C. C. Collins, Atlanta, chairman; Dr. W. S. Taylor, DeLand, secretary.

Arrangements—Dr. D. D. Beekman, chairman; Dr. Geo. E. Morden, Dr. Edith Brush, all of Daytona.

Note.—It is urgently requested that all members, whether on committees or not, will contribute papers or clinics, communicating their willingness to the chairman of the committee to which they wish to be assigned.

D. D. BEEKMAN, D.D.S., Secretary.

DR. J. D. L. TENCH, D.D.S., President.

New Hampshire Dental Society.

The annual meeting of the New Hampshire Dental Society will be held at Manchester in the Board of Trade rooms, May 13, 14, and 15. All members of the profession are cordially invited to be present.

913 Elm St., Manchester, N. H.

F. F. FISCHER, Sec'y.

Nebraska State Dental Society.

The next regular meeting of the Nebraska State Dental Society will be held at Lincoln, starting May 18, and will last three or four days.

Lincoln, Neb.

F. D. SHERWIN.



Missouri State Dental Association.

The thirty-ninth annual meeting of the Missouri State Dental Association will be held at Kansas City, Mo., May 19, 20, 21.

Reduced railroad and hotel rates have been secured and a very large attendance is assured.

A number of dentists of national reputation, amongst them Drs. J. B. Willmot, Toronto, Canada; E. K. Wedelstaedt, Minneapolis, Minn.; and A. C. Searl, Owatonna, Minn., will present papers and give clinics.

All ethical members of the profession are cordially invited to attend, become members and take part in the discussions.

OTTO J. FRUTH, Cor. Sec'y.

3066 Hawthorne Boulevard, St. Louis, Mo.

Southern Wisconsin Dental Association.

The Southern Wisconsin Dental Association will hold its annual meeting at Janesville, Wisconsin, May 20 and 21. Every effort is being made to have a large and interesting meeting. Prominent members of the profession will present papers and some of the most noted clinicians will operate. All reputable members of the profession are cordially invited.

C. W. COLLVER, Sec'y.

Clinton, Wis.

Susquehanna Dental Association of Pennsylvania.

The fifty-fifth annual meeting of the Susquehanna Dental Association of Pennsylvania will be held at the United States Hotel, Easton, May 13, 14, and 15. Every effort is being made to have a large and interesting meeting. Prominent members of the profession will present papers and noted clinicians will operate. All reputable members of the profession are cordially invited.

J. C. HORTZ.

Easton, Pa.

The Eastern Indiana Dental Association.

The Eastern Indiana Dental Association will hold its annual meeting at Elwood, Ind., May 12 and 13. Efforts are being made to have a large and interesting meeting. Prominent members of the profession will present papers and the clinics will be of especial interest. All members of the profession are cordially invited.

Rushville, Ind.

P. H. CHADWICK, Sec'y.





Sixth District Dental Society of the State of New York.

The thirty-fifth annual meeting of the Sixth District Dental Society of the State of New York will be held at Binghamton, N. Y., on May 7 and 8.

F. W. McCALL, Secy.

Arkansas State Dental Association.

The annual meeting of the Arkansas State Dental Association will be held at Little Rock May 12, 13 and 14, 1903.

Bentonville, Ark.

W. T. ROWLAND, Sec'y.

Michigan Dental Association.

The forty-seventh annual meeting of the Michigan Dental Association will be held in Petoskey July 7, 8, and 9, 1903. Come to Petoskey and spend your vacation on the above dates.

F. H. ESSIG, Sec'y.

Dowagiac, Mich.

Virginia State Dental Association.

There will be a meeting of the Virginia State Dental Association at Hot Springs, Va., July 22-24, 1903.

F. W. STIFF, Chairman.

The Connecticut Odontological Society.

The Connecticut Odontological Society will hold its third annual meeting at the Young Men's Republican Club, corner of Crown and Temple streets, New Haven, Conn., on Tuesday, June 16, 1903, beginning at 10.30 a. m.

J. HAMMOND MALLERY, Chairman Executive Committee.

26 State street, Hartford, Conn.

Michigan State Board of Dental Examiners.

The next meeting of the Michigan State Board of Examiners in Dentistry will be held in Grand Rapids, May 12, 1903, and following days.

Petoskey, Mich.

CHAS. J. GRAY, Sec'y.



Dental Commissioners of Connecticut.

The Dental Commissioners of the State of Connecticut hereby give notice that they will meet at Hartford, on Thursday, Friday and Saturday, May 21, 22, 23, 1903, respectively, to examine applicants for license to practice dentistry, and for the transaction of any other proper business.

The practical examination in operative and prosthetic dentistry will be held Thursday, May 21, at 9 a. m., in Putnam Phalanx Armory, corner Haynes and Pearl streets.

The written theoretic examination will be held Friday and Saturday, May 22 and 23, at the Capitol.

All applicants should apply to the recorder for proper blanks, and for the revised rules for conducting the examinations.

Application blanks must be carefully filled in and sworn to, and with fee, twenty-five dollars (\$25.00), filed with the recorder on or before May 16, 1903.

By direction of the Dental Commissioners.

J. TENNEY BARKER, Recorder.

8 North Main St., Wallingford.

Illinois State Board of Dental Examiners.

The next regular meeting of the Illinois State Board of Dental Examiners, to examine applicants for license to practice dentistry in this State, will be held in Chicago, May 2 and 3, 1903.

Under an opinion of the attorney-general the following are eligible to take the examination before the Board: "Anyone holding a medical diploma from a reputable medical college; anyone who has been a legal practitioner of dentistry for ten years prior to removing into the State; and anyone who failed to register in this State at the time the law went into effect, which was in 1881."

Candidates must furnish their own patients and also come provided with the necessary instruments, rubber dam and gold to perform practical operations and such other work as is deemed advisable by the Board. Those desiring to take the examination should matriculate with the secretary at least ten days before the date of meeting. The examination fee is \$10.

Any further information can be obtained by addressing the secretary.

J. G. REID, D.D.S., Sec'y.

1006 Champlain Bldg., Chicago.





New Jersey State Board of Registration and Examination in Dentistry.

The New Jersey State Board of Registration and Examination in Dentistry will hold their semi-annual examination on Tuesday, July 7, Wednesday, 8, and Thursday, 9, 1903, at the Assembly room of the State House at Trenton, N. J. Sessions begin promptly at 9 a. m. All applications must be in the hands of the secretary ten days prior to the examination.

J. ALLEN OSMUN, Sec'y.

588 Broad St., Newark, N. J.

South Dakota State Board of Dental Examiners.

The next meeting of the South Dakota State Board of Dental Examiners will be held at Lead, S. D., May 13 and 14, beginning promptly at 9 a. m. No candidates for examination will be received after 9 a. m. on the 13th. Those desiring to attend this meeting should take advantage of the Odd Fellows' State Convention excursion rate. This excursion leaves Sioux City, May 11 at 7.30 p. m.

The Board will also hold a meeting at Redfield, S. D., on June 2 and 3. No candidates will be received for examination at this meeting after 9 a. m. on the 2d. The South Dakota State Dental Society meeting will be held at the same place June 3, 4, and 5. All candidates taking these examinations should come prepared to insert gold, silver, and cement fillings.

G. W. COLLINS.

West Virginia State Board of Dental Examiners.

The West Virginia State Board of Dental Examiners will hold its spring meeting for examinations June 3, 4, and 5, at Charleston, W. Va. For further information address the secretary.

Cor. 4th Ave. and 9th St., Huntington, W. Va.

W. A. WILLIAMS, Sec'y.

Pennsylvania State Board of Dental Examiners.

The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg June 9-12, 1903. Address the Dental Council, Harrisburg, Pa., for application papers and further particulars.

G. W. KLUMP, Sec'y.

Williamsport, Pa.



Arkansas Board of Dental Examiners.

The Arkansas State Board of Dental Examiners will meet in the city of Little Rock, Arkansas, May, 12, 13, and 14, for the purpose of examining applicants who may desire to practice dentistry in the State of Arkansas. It will be necessary for all applicants to come prepared to stand examination whether they hold a diploma or not.

(Signed) J. M. FLENNIKEN, Pres.
W. H. MARSHALL, Sec'y.

Maryland State Board of Dental Examiners.

The Maryland State Board of Dental Examiners will meet for the examination of candidates for certificates on Wednesday and Thursday, May 6 and 7, 1903, at the dental department of the Baltimore Medical College, N. Howard Street, Baltimore, Md., beginning at 9 a. m. Candidates must pass a written examination in operative and mechanical dentistry, anatomy, physiology, pathology, therapeutics and materia medica, chemistry, bacteriology and oral surgery and must insert a gold filling in the mouth and exhibit specimens of prosthetic work properly vouched for. Applications must be filed prior to May 6, accompanied by the fee of ten dollars. For further particulars apply to the secretary.

F. F. DREW, D.D.S., Secy.

701 N. Howard Street, Baltimore, Md.

Ohio State Board of Dental Examiners.

The Board of Dental Examiners of the State of Ohio will meet at the Hartman Hotel, Columbus, June 30, July 1 and 2, for the purpose of examining candidates for certificates of registration.

All applications should be filed with the secretary by June 20.

For further particulars address

112 East Broad St., Columbus, Ohio.

H. C. BROWN, Sec'y.

Kentucky State Dental Association.

The date of the Kentucky State Dental Association has been changed from May 19, 20, 21, to May 25, 26, 27, at Bowling Green.

636 Fourth Ave., Louisville, Ky.

C. R. SHACKLETH, Sec'y.





Kansas State Board of Dental Examiners.

The Kansas State Board of Dental Examiners will meet at Kansas City, Kansas, May 4, 5, 6, 7 and 8, 1903. The examinations will be theoretical and practical. Applicants must provide their patients, instruments and material and be prepared to make a plate, crown and insert a gold, amalgam and cement filling. The theoretical examination will be the same as usually given at such times.

Kansas City, Kansas.

J. P. ROOT, Secy.

Oklahoma Board of Dental Examiners.

There will be a meeting of the Oklahoma Board of Dental Examiners held in Oklahoma City on May 11 and 12, 1903, for the purpose of examining candidates for license.

All applications must be in the hands of the secretary by May 1.

A. C. HIXON, Secy.

New Orleans Academy of Stomatology.

The annual meeting of the New Orleans Academy of Stomatology was held in the assembly room of the New Orleans College of Dentistry on Wednesday, March 11, when the following officers were elected to serve for the ensuing year: Dr. H. P. Magruder, president; Dr. J. H. Landry, vice-president; Dr. Paul de Verges, secretary and treasurer; Executive Committee: Dr. L. D. Archinard, Dr. C. V. Vignes, Dr. V. K. Irion. The Academy meets fourth Wednesday of each month. Our next essayist will be Dr. M. R. Fisher.

PAUL DE VERGES, Sec'y.

Machecha Building, New Orleans, La.

Vermont State Dental Society.

At the twenty-seventh annual meeting of the Vermont State Dental Society held at Burlington, March 18-20, 1903, the following officers were elected for the ensuing year: President, Dr. J. Holmes Jackson, Burlington; first vice-president, Dr. H. Burbridge, Woodstock; second vice-president, Dr. Geo. F. Barber, Brattleboro; secretary, Dr. Thomas Mound, Rutland; corresponding secretary, Dr. Grace L. Bosworth, Rutland; treasurer, Dr. W. H. Munsell, Wells River; State prosecutor, Dr. J. A. Robinson, Morrisville; Executive Committee: Dr. Geo. O. Mitchell, St. Albans; Dr. J. Churchill Hindes, Vergennes; Dr. C. H. Kent, Barre. The next meeting will be held at Montpelier the third Wednesday in March, 1904.

Rutland, Vt.

THOMAS MOUND, Sec'y.